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**July 1, 1939**

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# CANNED FOODS AS PROTEIN SOURCES

● The primary function of protein in foods is that of a building material essential for tissue growth and maintenance. In 1897, Rubner postulated that all proteins are not of equal value in nutrition (1). Since that time, considerable attention has been directed towards the establishment of the types and amounts of protein required by man.

Chemical and biological investigations have demonstrated that different proteins may vary widely in both chemical composition (2) and ability to satisfy the nitrogen requirements (1, 3) of various animals. Of the twenty-odd amino acids which have been isolated from proteins (4) arginine, histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan and valine have been shown to be essential in mammalian nutrition. The biological value of a protein is in reality a measure of its ability to supply those amino acids essential for tissue building and repair which the animal cannot synthesize (5) from material "ordinarily available" at a rate sufficient to meet body demands. A "complete" protein is one which will supply—or at least contains—the essential amino acids. Few proteins approach this ideal condition. Fortunately, however, a varied diet, containing proteins of both vegetable and animal origin, will usually supply all the essential amino acids which may not be supplied in adequate amounts by any one of the proteins.

As to the amounts of protein needed by men, experiments of the balance sheet or endogenous nitrogen elimination types (3, 6) have demonstrated that the protein require-

ments of the human adult may apparently be adequately met by relatively low protein intakes. These intakes are of the order of 0.5 gram per day per kilogram of body weight. However, there is evidence (3) that development of physique and general health is favored by more liberal protein intake. Since excess of protein above the requirement for tissue repair and growth is utilized as a source of fuel, the present trend is toward more liberal protein allowances.

In infancy and childhood, suggested protein allowances (3) are relatively high, being of the order of 3 to 4 grams of protein per kilogram of body weight in infancy and gradually decreasing with increasing age until adult allowances (3, 6) of 0.75 to 1.5 grams protein per kilogram of body weight are reached. Protein allowances of the order of 10 to 15 per cent of total calories as protein calories in the mixed diet throughout the entire life cycle, appear to be satisfactory. In the formulating of a mixed diet calculated to supply optimal amounts of proteins, the canned meats, marine, dairy and vegetable products may be freely used.

During recent years, popular interest has been concerned chiefly with the more recently discovered essential food factors such as the vitamins. However, the modern concept of adequate nutrition teaches that the optimum diet should be complete with respect to all known dietary essentials, protein, of course, included. In the attainment of this objective, the hundreds of commercially canned foods of animal and vegetable origin should prove both economical and valuable as protein sources.

## AMERICAN CAN COMPANY

230 Park Avenue, New York, N. Y.

- (1) 1935 Nutrition Abstracts and Reviews, 4, 447
- (2) 1929 The Biochemistry of the Amino Acids  
H. H. Mitchell and T. S. Hamilton  
Chemical Catalog Company, New York
- (3) 1937 Nutrition Abstracts and Reviews, 7, 257

- (4) 1937 J. Am. Med. Assn. 109, 2070
- (5) 1938 Annual Review Biochemistry, 7, 356
- (6) 1938 Chemistry of Food and Nutrition, Fifth Edition, H. C. Sherman, Macmillan Co., New York.



The Seal of Acceptance denotes that the statements in this advertisement are acceptable to the Council on Food of the American Medical Association.

*We want to make this series valuable to you, so we ask your help. Will you tell us on a post card addressed to the American Can Company, New York, N. Y., what phases of canned foods knowledge are of greatest interest to you? Your suggestions will determine the subject matter of future articles. This is the forty-ninth in a series, which summarize, for your convenience, the conclusions on canned foods reached by authorities in nutritional research.*

# NEW YORK STATE JOURNAL *of* MEDICINE

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## *Editorial*

### Smallpox Scares

The outbreak of smallpox in several upstate communities is a forcible reminder that the prevention of disease depends on public cooperation almost as much as on the discovery of effective preventives. Smallpox is a disease for which there is not the slightest excuse today. We have had a specific means of immunization against it for over a hundred years. Inoculation is safe and entails a minimum of discomfort. Only the ignorance and stubbornness of a few fanatics keep this disease alive today.

New York State, with compulsory vaccination of public school children, is ordinarily free from smallpox. The unvaccinated are always a potential source of danger, however. It is significant that among the 20 cases reported so far, none had previously been vaccinated.

Where smallpox has broken out, the health authorities have inaugurated widespread compulsory vaccination. There is no knowing where it will strike next, however, and physicians should con-

### Change of Dues Year

The House of Delegates at its last meeting changed the dues year to coincide with the fiscal year—July 1 to June 30 of the succeeding year. See page 1322

duct an aggressive campaign among their patients for universal inoculation. Revaccination is advisable, to be on the safe side, when a primary vaccination is more than five years old. All children going to summer camps, particularly in the upstate region, should be vaccinated or revaccinated as the case may be.

Although young women, in particular, prefer leg vaccinations, many responsible authorities advise against them. The scar is exposed to dust and moisture and heals slowly, inviting infection. The outer surface of the left arm is generally considered the best site.

So far the cases reported have been mild and few in number and the health authorities have had no difficulty in keeping the disease under control. That there should be any cases at all, however, is a warning that smallpox is not really "conquered." Let us relax our vigilance for only a few years and it will again be a scourge to be feared.

There is a way of effectively scotching this menace. Universal compulsory vaccination is a safe defense—and our only defense—against smallpox. The prejudices and fears of a few fanatical persons should not be permitted to expose the rest of their communities to the ravages of a terrible disease.

### The Legislative Balance

From the medical point of view, the state legislature of 1939 leaves a good record behind it. It passed at least one important medicosocial law recommended by the profession and withstood pressure from many groups to lower the educational barriers surrounding medical practice.

Enactment of the Piper bill paves the way for nonprofit voluntary medical expense indemnity insurance in this state. This system permits distribution of the costs of medical care over large groups without sacrifice of the benefits of private practice. It does not create an opening wedge for state medicine or the practice of medicine by corporations. Neither does it interpose a political bureaucracy between doctor and patient. It seeks to solve the problem of medical care for small wage-earners without undermining existing social and political institutions that have proved beneficial in the main.

Apparently the legislature had an inkling of the many factors involved in the creation of a sound group-payment scheme, for it rejected all plans for compulsory health insurance. Neither would it permit hospital service corporations to offer medical care.

The profession suffered its chief legislative disappointment in the defeat of the physicians' lien bill in the Senate Judiciary Committee.

after it had passed the Assembly. However, there is every reason to hope that this is a purely temporary setback. As understanding of the background and aims of the lien bill has grown, so has the sentiment for it.

After the veto of the original osteopathy bill by the Governor, another measure was speedily passed answering the objections raised by the medical profession. The new statute grants permission to perform minor surgery and employ anesthetics, antiseptics, and biologic products to those osteopaths who prove their fitness to the Regents. On the surface there is nothing objectionable in this. In actual practice, however, enforcement officials will have to be extraordinarily alert to detect infractions of the new law by osteopaths who fail to qualify.

On the whole, the legislature showed a wholesome respect for the educational requirements of medical practice. The chiropractic bill met a decisive defeat early in the session, so did the Esquirol bill, attempting to break down certain essential distinctions between physiotherapy, technicians, and physicians. This attitude presages a continuation of New York State's leadership in sane, progressive medical legislation.

### Drugs for Angina Pectoris

The modern therapy of angina pectoris due to coronary artery disease has been best served by emphasis upon rest, both physical and mental, and dietary restriction. Nevertheless, there have been many drugs that have been advocated for the relief of anginal attacks caused by coronary occlusion. In turn, morphine, alcohol, and the nitrites have been used. In recent years the xanthine derivatives have been the drugs of choice, although it is significant that little agreement exists as to the relative merits of the several components of this group.

The increasing frequency of this disease convinced Master, Jaffe, and Dack<sup>1</sup> of the importance of properly evaluating the various agents and measures used in its treatment. A unique method of estimating the effects of the drugs was applied to 201 patients. A placebo of milk sugar was given first and its effect on the precordial pain noted after a minimum time of two weeks. Another drug was then given for a similar trial period, and, whether effective or not, was again replaced by a placebo and followed by another drug. The drugs used were alcohol, aminophyllin, aspirin, bromides, chloral hydrate, codeine, digitalis, dilauidide, luminal, myorgal, nitroglycerin, phyllicin, sodium nitrite, theobromine, and milk sugar.

<sup>1</sup> Master, A. M., Jaffe, H. L., and Dack, B. *Am. J. Med. Sc.* 197: 774 (June) 1939.

Their results show that no drug was consistently successful in any significant number of cases, and that the best results were obtained with the placebo. This can best be explained by the fact that periods of spontaneous remissions are frequently experienced by those suffering from coronary disease, particularly when the psychologic and emotional status of the patient is favorable. It must be evident, therefore, that in the treatment of angina pectoris, drugs play only a minor role in the protracted management of a given case.

### Sulfanilamide in Smallpox

Smallpox is on the increase in the United States, and, although it has assumed a mild course, the fact that 14,335 cases were reported for 1938 shows the need for the continuance of vigorous efforts for universal vaccination. Only this measure, the value of which is unquestionable, can successfully eradicate the disease as effectively as it has lessened its virulence.

Where the disease occurs, however innocuous it may be, the pustular eruption with its subsequent deforming pockmarks may be expected. McCammon,<sup>1</sup> in a series of 7 cases that occurred in one community and for the most part in the same family, treated 3 symptomatically and 4 with sulfanilamide. In the first group the typical eruption of smallpox appeared, in the remaining cases an evanescent macular eruption was seen in 3, and only three pustules in the fourth. Recovery was hastened in the patients treated with sulfanilamide, and they were able to resume their normal duties a week earlier than those who were not given this form of medication.

What the effect of this drug is when administered during the fully developed eruptive stage is not known, but from McCammon's report it appears that a decidedly beneficial effect can be expected when given during the initial stage.

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### Current Comment

"Is the American Medical Association a trust? Yes it is—a sacred 'trust'. From its very beginning the A M A has considered the health of the American people above all else. It led the fight against diploma mills, and through its efforts medical education was placed on

its present high plane. The A M A was instrumental in raising the standards of hospitals so that today American hospitals are the finest in the world. It has striven continuously to give the American people the best quality of medical care that the people of any great nation enjoy.

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<sup>1</sup> McCammon, W O. J A M A 112 1936 (May 13) 1939

But, because it does not fall in line with all the schemes proposed for the distribution of medical care, the A M A must now be purged

"We say, in the words of Patrick Henry, 'If this be treason, make the most of it'"—From the *Milwaukee Medical Times* of recent date

"The medical profession is on the offensive. The constructive spirit which has always characterized the scientific physician has never been more manifest than at the present moment. This is shown in the improved organization of medical societies, in the recent advance along the lines of medical education and in improved methods of training for the specialties. There is also a revival of interest in the tradition of the doctor as a teacher. It is recognized that if the public is properly prepared to accept scientific medicine, the cultists and charlatans can be wholly cast out of the social scheme and that this can be done through the education of the public"—From the *Journal* of the Kansas Medical Society, recently

"Now, if anyone wants to understand the present situation in medicine, he will have to sit down quietly and hear both sides. It is not a simple problem. There are grave objections to all the plans for reform. I venture that the average doctor spends more time than all the bureaus in Washington fighting to keep his patients' hospital and laboratory expenses down. Certainly nobody can say that the American doctor of today has not kept abreast of the advances in medical science and technic.

"And let us remind you also that with all the difficulties the doctor of our time has not done so badly. During the two depressions the number of people ill has been lower than at any other time in the history of the United States or than in any European or Asiatic country—particularly countries where state medicine flourishes. This has been accom-

plished by the medical profession and its public health services operating under the very conditions that have brought so much criticism

The enemies without are the sociologists. The social workers, the statisticians, the public health officials (lay and professional, of course, with many individual exceptions), the visiting nurses, the uplifters, the well intentioned hell pavers—people who have never had the responsibility of treating a sick person and who think diagnosis and treatment can be dished out wholesale, after the fashion of the ready made pants business"—Dr Logan Clendering, from an article of his in a recent issue of *The Commentator*

"Everywhere liberty is on the defensive. The rights of minorities are suppressed. Freedom of discussion, the right to differ, the right to live one's own life, these things are denied today to millions upon millions of the earth's population. What is happening abroad is no local affair. America is not immune. It can happen here. There are no international barriers or immigration walls against the contagion."—Merle Thorpe, writer in *Nation's Business*, quoted in the May issue of the *Illinois Medical Journal*

Socialization of medicine can provide the sick with much diagnostic attention, and multiplicity of laboratory procedures and roentgen studies. Huge institutions can also supply certain needs, but no mere plan or institution can administer to the patient your time, your thought, your care, your educational services and individualized therapy, which alone can bring about a lowering of the death rate and better therapeutic results in diseases of the gastrointestinal tract. I am sure that these are some of the advantages to the people in your community that will be lost if socialization of medicine takes place"—From a paper on gastrointestinal conditions from the point of

view of the general practitioner, found in the *Pennsylvania Medical Journal* of May, 1939, and written by Dr A H Aaron, of Buffalo

. . .

“ Practically no one—and certainly not the American Medical Association—has ever opposed the payment of medical bills through insurance The medical profession has objected most strenuously and continues to object to the compulsory wholesale purchase and retailing of medical service to patients by an insurance company, governmental agency, or any other organization or individual This objection rests on the proof afforded by vital statistics that during this process of purchase and retailing the medical service is adulterated by politics and depreciated by administrators until it loses much of its value as a protection of the public ”—From a recent issue of the *J A M A*

. . .

“ On account of the great size of our country and the various economic plans applied in the administration of the various existing conditions, the adjustment and correlation of these must require time and the best effort of the medical profession with a constantly enlightened public I believe in our societies there is ample organization of committees

and duly elected officers to change and modify tendencies that detract from the honorable position and esteem as a profession that we have held since the early days of pioneer American medicine

“Our problem is that the profession, in greater numbers, should feel the importance of their responsibility and give of their time and effort to improve the conditions under which they practice their profession in their respective communities ”—From the presidential address of Dr Samuel E Munson before the Illinois State Medical Society at its annual meeting in May

. . .

“There has been the usual legislative effort of the osteopaths, chiropractors and other cults to have the door of all established hospitals opened to them for unlimited practice of their healing ?? methods

“Why these leeches of the healing arts are always attempting to reap the benefits of organized medicine is or should be a cause for investigation and study by the public at large It will be a sad day for the public if these cults are permitted to practice in the well-staffed and well-equipped hospitals that the medical profession has established after such painstaking efforts over many years ”—C P. D in the *St Louis County Medical Society Bulletin*, for May 5, 1939

The 1939 MEDICAL DIRECTORY of New York, New Jersey, and Connecticut

CALLING ALL PHYSICIANS IN NEW YORK STATE!

The new edition of the MEDICAL DIRECTORY is now being compiled for publication in December, 1939 The *deadlines for changes are:*

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# TENDON INJURIES

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THE purpose of this paper is to enumerate, describe, and discuss the various types of pathologic conditions of tendons and their sheaths resulting from trauma. Typical case reports are presented. The various immediate results from trauma are swelling, furling, partial or complete rupture or dislocation of the tendon and localized swelling of the sheath, and generalized irritation producing sterile tenosynovitis.

Infection of the tendon sheath may be initiated by trauma, the most common types being due to invasion of the staphylococcus or streptococcus and, less frequently, the more chronic inflammation due to the gonococcus or tubercle bacillus.

As a result of some of these acute conditions, the functions of tendons may be permanently impaired. The result of trauma is more severe if the pre-existing condition of the tendon is impaired. The most frequent conditions encountered are fraying due to previous trauma, fatty infiltration due to excessive obesity, and fibrous infiltration due to arteriosclerosis and, rarely, to lues.

## Etiology

Localized swelling of a tendon may be caused by direct contusion or excessive strain, causing a few fibers to separate at their weakest point with resulting edema. The most usual cause of tendon strain is strong contraction of the muscles attached to it with fixation of the points of attachment, or strong resistance to their motion. Furling is a result of a portion of a tendon becoming caught against an obstruction and holding it while the motion of the part causes overlapping of adjacent parts of the tendon. Irritation with resulting adhesions may make this condition permanent.

Rupture is usually caused in the same manner as swelling, the chances of its occurrence being increased if tension is present at the time of direct contusion.

Rupture of a tendon never results from direct trauma unless it has been weakened by disease or previous trauma, as healthy tendons separate at the point of insertion before breaking. Rupture rarely results from friction due to rubbing against a rough surface during its motion. The tendon most frequently affected is the extensor pollicis longus, the cause being Colles's fracture.

Dislocation of a tendon is exceptional and results from the sudden twisting of a limb while the involved tendon is tense.

Localized swelling of a tendon sheath may result from contusion of a small area, whereas tenosynovitis may result from contusion of a large area. Other causes of aseptic tenosynovitis are a sudden twisting motion, bruising the sheath between its tendon and surrounding structures, prolonged, excessively hard usage, producing edema and irritation of both the sheath and the tendon, and excessively rapid motions. It has been estimated that the human tendon will show signs of irritation when motions exceed 1,500 to 2,000 per hour.<sup>1</sup>

*Case 1*—A basketful of rocks and dirt dropped on the right foot, causing pain and swelling of the dorsum of the foot. The patient continued working for three days and the pain and swelling increased.

Upon examination there was discoloration and swelling of the distal one-third of the dorsal surface of the foot with a grating sensation upon manipulation of the toes.

A diagnosis of the contusion and tenosynovitis of the right foot was made, and absolute rest and application of heat advised. There was complete disappearance of symptoms and signs at the end of a four-day rest period with no permanent defect.



upon pressure over the affected joint and pain upon motion

Swelling, tenderness, and pain upon motion along the course of a tendon sheath indicates tenosynovitis. In the aseptic variety there is no redness or elevation of temperature, but a characteristic sign is crepitation upon motion.

Infectious tenosynovitis may be differentiated from the aseptic variety by the addition of localized heat, redness, and deformity, the deformity being caused by irritation and contraction of the muscle attached to the involved tendon.

The unusual, acute, fulminating type of gonorrheal tenosynovitis produces the same symptoms and signs as the other acute purulent types, although there is always a tendency toward extending lymphangitis, which is seldom found in other forms. Both the acute and subacute forms are more liable to affect the extensor tendons. The subacute variety is usually associated with gonorrheal arthritis. The symptoms are similar to those of other purulent tendon sheath infections but are less intense and develop more slowly. The diagnosis is confirmed by testing the blood for gonorrheal complement fixation.

Tuberculous tenosynovitis is slow in development and practically unattended by pain. The earliest evidence of its presence is a disturbance of function and, as it is confined to the tendon sheath, this gradually assumes a sausage shape. The consistency may occasionally be fluctuant but it is usually boggy or doughy and the swelling may be sufficient within the closed tendon sheath to cause a firm, tense mass. The skin is seldom involved, being slightly reddened rarely and occasionally blanched due to unusual tension. Tenderness is never present and pain is unusual. As the swelling progresses, rice bodies are formed and when these are palpated diagnosis is certain.

In the late stages, if untreated the process may break through the tendon sheath and a more widespread, unformed, boggy swelling result.

In the very early stages with localized

boggy swelling over a small area, the condition may, upon casual inspection, be mistaken for a ganglion.

De Quervain's disease is the most interesting of the chronic fibrous tendon disturbances. It is possible that this condition sometimes affects compartments other than that enclosing the abductor pollicis longus and the extensor pollicis brevis, but it has only been described in relation with these tendons and the typical symptom complex has not been observed by this writer associated with any other tendon. The probable explanation is that the tendons moving the thumb are more frequently used than any other in the body, and these particular tendons are quite superficial and accessible.

The complaint upon examination is pain in the region of the radial styloid, radiating up the arm and into the thumb for at least several weeks' duration and usually a longer duration. To these original symptoms are added weakness of grip, and finally insecurity of grip as the disease progresses.

Examination reveals tenderness over the radial styloid, occasionally swelling or thickening, and pain upon adduction of the hand, which becomes exquisite if the thumb is held flexed upon the palm during the motion.

Following injury or infection any tendon in the body may become permanently impaired. These conditions are manifested by thickening of the injured part, with limitation of motion and, frequently, deformity of the affected appendage.

### Course

The swelling and pain resulting from localized tendon or sheath contusion usually subsides within two to three weeks. Occasionally a nodule may remain which seldom interferes with function.

Furling, dislocation, rupture, ganglion, and "trigger finger" are permanent conditions unless relieved by some form of surgical therapy. Results vary following treatment but usually the conditions are

alleviated, leaving some localized thickening and limitation of motion in the involved joints

In all these conditions save rupture the maximum point of improvement following operation is reached within two months. This point is not reached for three to five months following tendon repair

Aseptic tenosynovitis usually persists in spite of therapy until the parts are placed at absolute rest. This treatment usually effects a cure within three to six weeks

Infectious tenosynovitis is seldom aborted, but frequently subsides within a few days following early and adequate incision. If progressive, it may cause sloughing of a portion of the tendon, involvement of other structures by extension, and usually fibrosis and limitation of tendon motion

Gonorrheal tenosynovitis occasionally subsides within one month and often continues for several, frequently resulting in fibrosis and limitation of tendon motion with varying degrees of associated joint stiffness due to arthritis. It is but little affected by the measures usually employed for tenosynovitis. Prolonged immobilization may considerably increase the permanent defect.

Tuberculous tenosynovitis is occasionally cured by conservative treatment, but usually removal of the entire portion involved is necessary. The results, of course, vary with the amounts and types of tissue involved and the completeness of removal. The percentage of cures following proper resection is approximately 75, recurrence taking place in the remainder, of which about 15 per cent may be cured by subsequent radical operation. Progression takes place in the remaining 10 per cent in spite of therapy usually resulting in death.

De Quervain's disease is progressive without treatment and is occasionally cured by immobilization and frequently by operation, the conservative treatment requiring six to twelve weeks if successful, and the surgical treatment requiring four to six weeks.

Other fibrous tendon lesions are benefited by physiotherapy in inverse proportion to the age of the disease. No benefit may be expected in this manner after the passage of twelve months. The results following plastic operation are relatively poor and should be attempted, in my opinion, only when the lesion interferes with normal performance of work or produces discomfort that might be relieved by operation.

### Treatment

Localized swelling in a tendon sheath or tendon subsides rapidly upon rest and the application of heat, preferably infrared. Absolute rest is ideal but not always necessary if it is essential that work be continued.

*Case 4*—A closing elevator door caught the thumb of the patient between it and the shelf. Pain was experienced upon the dorsal surface of the proximal phalanx of the joint. Motion of the thumb particularly flexion aggravated pain.

Examination revealed swelling and tenderness upon pressure over the area described with considerable pain upon the last two degrees of flexion of the thumb.

A diagnosis was made of the contusion of the dorsal surface of the left thumb including the tendon sheath.

Treatment consisted in the application of longitudinal strips of adhesive limiting flexion of the thumb for ten days and administration of diathermy three times weekly. There was complete disappearance of symptoms within three weeks, leaving no residual thickening or other defect.

*Case 5*—While tying up a large package the patient experienced a snapping sensation on the dorsal surface of the right hand. Pain continued and swelling occurred upon the dorsal surface of the wrist the following day.

There was a tender nodular swelling present over the posterior surface of the base of the fourth metacarpal bone. Pain was experienced upon motion of the wrist and ring finger but there was no limitation of motion. X-ray examination was negative.

A diagnosis was made of the localized swelling of the extensor tendon of the right ring finger a result of sprain.

Treatment was partial immobilization by means of adhesive strapping in longitudinal and circular bands, and diathermy administered

three times weekly There was gradual reduction of pain, with disappearance at the end of three weeks The size of the mass was unchanged at that time, but examination two months later revealed it to be one-half its original size and hard, but not tender

Furling is cured by release of adhesions, rupture by approximation and sutures, dislocation by replacement "Trigger finger" may not require open operation for removal of constriction or obstruction, but may frequently be alleviated by a transdermoid incision after the manner of Abbe<sup>3</sup>

*Case 6*—The patient had the left hand pressed between two vehicles with considerable force Pain was experienced over the anterior surface of the left ring finger, which continued for one week and then disappeared No further symptoms developed until three weeks later when the patient awoke to find the finger semiflexed, extension being accomplished by use of force, accompanied by a snap These typical symptoms of "trigger finger" continued

There was slight tenderness over the proximal interphalangeal joint of the left ring finger, locking upon flexion, extension occurring suddenly with a snap upon application of force

A splint was applied in extension for two weeks with no benefit Vigorous massage for a period of two weeks was of no benefit Transdermoid vertical incisions were made with no immediate benefit, but complete disappearance of locking took place upon removal of the splint at the end of two weeks Examination three months after operation revealed 10 per cent constriction in the motion of the affected joint, due to slight thickening of the anterior joint, but no return of locking

Simple rupture of a ganglion by means of a blow or pressure is frequently sufficient and should always be attempted If recurrence takes place, the contents may be aspirated by a large bore needle, and diathermy applied The majority of the cases will be cured in this manner, the remainder requiring either injection or excision The material most frequently used for injection is sodium morrhuate and good results have been reported, although the results of the writer with this method have been otherwise

Excision should always be postponed until all other methods have proved in-

adequate If it is attempted, care must be taken to avoid damage to the adjacent tendon and nerves

Incomplete rupture of a tendon seldom requires suture In most instances, immobilization of the part with the injured tendon relaxed and the opposing one stretched for a period of six weeks results in healing at the site of rupture by fibrosis

Contraction of the scar takes up some, and sometimes all, of the slack caused by rupture, operation for shortening being necessary only when the defect is sufficient to interfere with ordinary work

*Case 7*—A carton weighing approximately 80 pounds fell from above the patient's head, striking his left ring finger upon the tip Following this, he experienced pain in the distal joint of the finger and was unable to fully extend it

Examination showed tenderness and swelling over the posterior surface of the terminal joint of the left ring finger and 25 per cent limitation of extension of this joint X-ray examination revealed minute chip fractures of proximal extremity of the posterior surface of the terminal phalanx

A diagnosis was made of the partial rupture of the tendon at the point of insertion The terminal phalanx of the ring finger was hyperextended, using the splint devised by Oppenheimer<sup>4</sup> for six weeks, followed by two weeks of physiotherapy

Pain disappeared during the eighth week Thickening and a defect in extension, amounting to 15 per cent of the ring finger, were present three months after the accident

Aseptic tenosynovitis responds quickly to immobilization, the symptoms disappearing within three to six weeks, rest being obtained by any reasonable method of splinting, preferably of molded plaster

When the symptoms are of mild degree and the occupation does not require a continuance of the manipulation causing the condition, partial immobilization may be attempted Radiation and diathermy are often used in conjunction with rest, but it is doubtful if they are beneficial

Immediately upon suspicion of infection of a tendon sheath, lateral incisions should be made into the entire portion

involved. Care should be exercised to avoid natural constricting bands and joints. Drains are necessary, preferably of rubber tissue, which is least irritating to the serous membrane. The drains are removed as soon as their purpose has been accomplished, usually within seventy two hours. The affected part should be kept constantly in a 10 per cent solution of Epsom salt, and after the first twenty four hours, the inflamed tendon should be voluntarily moved several times every four hours. These movements should be increased daily so long as the infectious process is subsiding. Extension of the process should be promptly attacked by means of adequate incisions. When the inflammation subsides, the continuous soaks may be replaced by a dressing that is saturated with the same solution three times daily. This assures drainage without keeping the tissues in an abnormal medium. Active motion should be encouraged.

Massage must be postponed until two weeks after complete disappearance of the inflammatory signs. The treatment then consists of infrared radiation three times weekly followed by massage and active and passive motion. Passive motion should never be forced, but may be used to demonstrate to the patient the increase in active motion expected upon the next observation.

*Case 8*—A point of a wire penetrated the anterior surface of the right middle finger. The patient continued working without receiving treatment and the following day the proximal phalanx was swollen and painful. The symptoms increased, forcing him to discontinue work and to seek medical advice.

Examination revealed a swelling and congestion of the proximal phalanx of the right middle finger with limitation of motion of the adjacent joint and exquisite tenderness over the inflamed area.

Lateral incisions were made upon the proximal phalanx and a rubber tissue drain inserted under novocaine block anesthesia. Continuous wet dressings of Epsom salt solution were applied and the drains were removed on the third day. Wet dressings were continued for four more days and then application of infrared radiation was made.

Massage was begun at the end of three weeks and continued for one week.

The infection had entirely subsided in one week with complete healing at the end of two weeks. Residual thickening and slight limitation of motion was present when the patient was discharged but examination three months later revealed no schedule loss.

Gonorrheal tenosynovitis is a self limited disease, continuing until sufficient antibodies have been produced. These have not yet been artificially constructed and although various forms of protein are recommended for nonspecific injection therapy, none seem definitely beneficial. The acute stage of the disease seems to be shortened by immobilization and occasionally by aspiration of fluid if it be excessive. If any focus, such as arthritis or prostatitis, is present it should receive appropriate treatment.

Physiotherapy, particularly heat, followed by increasing active motion is started as soon as the acute symptoms have subsided. Massage may be begun two weeks later, provided there has been no recurrence. As arthritis is frequently associated, the tendency toward stiffness is strong, and physiotherapy must be instituted early.

*Case 9*—A door fell on the patient's right hand and wrist and swelling and pain resulted and increased. Three days later he visited a hospital where a diagnosis of contusion and ganglion was made although no ecchymosis was observed. He visited another hospital a few days later and a diagnosis was made of tenosynovitis of the right hand. He was then referred to a third hospital the diagnosis there being cellulitis with thenar space infection. X rays were reported negative.

Examination twenty five days later revealed thickening edema and tenderness involving the dorsum of right hand wrist and fingers. Only 10 per cent motion was possible in the wrist or any joints of the fingers. X ray examination revealed the moth-eaten appearance of the carpal bones.

The type of thickening and the appearance of the bones were sufficient for clinical diagnosis of gonorrheal tenosynovitis and arthritis involving the extensor tendons of the hand and carpal bones. This was later confirmed by a complement fixation test of the blood which was four plus.

After immobilization in a splint for one week, infrared radiation was applied and active motion encouraged. This treatment continued for three weeks. The patient did not return for further treatment and did not reply to communications. He reported for examination five and one-half months later, having had no treatment during this time. Examination revealed complete return of motion in all joints. An x-ray examination could not be obtained at that time.

Subsequent investigation proved that although this man was working with other employees on the date of the alleged accident, none witnessed it, and the man did not report the accident until two days later.

The conservative treatment of tuberculous tenosynovitis is beneficial only in the early stages of the disease. If a small portion of a tendon is involved with no extension to surrounding structures, it should be attempted. This treatment consists of absolute rest by means of a molded plaster splint, associated with the usual general measures employed in the therapy of tuberculosis. Many associated procedures have been used, but in the opinion of the writer, the only useful local adjunct is the daily application of ultraviolet ray. Stiffness of muscles and tendons frequently remaining after successful conservative treatment should not be treated, as any irritation might reactivate the infectious process.

Excision of the pathology is indicated if progression takes place during conservative treatment, or if a cure has not been obtained in this manner within six months. The objective of operative treatment is complete removal of the diseased tissue with sufficient adjacent healthy tissue to include microscopic extensions. An excellent description of surgical treatment and operative procedure has been contributed by Mason.<sup>5</sup>

Following operation the drains are removed within seventy-two hours, the sutures within twelve to fourteen days, and motions are begun at this time and gradually increased unless the tendons have been ruptured, in which case the aftercare is the same as usual following tendon repair, which is six weeks' immobilization followed by gradually increas-

ing physiotherapy with no strain allowed for at least ten weeks.

*Case 10*—The patient fell and struck a point one-half inch proximal to the knuckle of the middle finger of his left hand against a rack. Swelling resulted and continued for six weeks, at which time a globular mass appeared. He was told by a physician that he had a ganglion and was referred to a surgeon who removed the so-called ganglion. This surgeon stated that the ganglion was attached to the sheath of the extensor tendon and was a cystic mass, but did not describe its exact appearance. The wound did not heal and malignancy was suspected.

The patient was sent to a hospital eight months after the accident and x-ray examination revealed a soft tissue mass centered about the distal end of the third metacarpal bone. There was diminished density and periosteal calcification about the head of the third metacarpal. X-ray examination of the chest at this time revealed tuberculosis of both lungs. These findings, considered with the clinical findings, warranted a diagnosis of tuberculous tenosynovitis.

Five months later the local process had progressed and destroyed the proximal joint of the middle finger. Treatment had been conservative until this time, including the usual systemic treatment for pulmonary tuberculosis.

On account of the continuous local progression, the tubercular process in the hand was excised. The wound did not heal and two months later the patient died of tuberculous meningitis.

De Quervain's disease, unlike the other fibrous diseases, should be treated by means of immobilization before operation is considered. The hand and forearm should be placed in an anterior molded splint with both hand and thumb abducted. The splint is left in place for six weeks. It is discarded if upon removal no symptoms are present, but is replaced if symptoms of less intensity remain. One author has reported a cure only after eighteen weeks of immobilization.<sup>6</sup>

Operation is indicated if there is no improvement following immobilization or, if after a maximum of four months, symptoms remain that create sufficient discomfort or inconvenience to warrant loss of time, expense, and the possibility of slight stiffness of wrist and thumb resulting from operation. The procedure consists in removal of the thickened por-

tion of the carpal ligament and tendon sheath.

*Case 11*—The patient noticed a gradually increasing pain at the base of the left thumb. Three weeks later he stopped working and a physician applied an adhesive strapping and infrared radiation. Pain diminished and he returned to work four months later.

Pain returned and radiant heat was again applied but the symptoms persisted. Two months after his return to work thickening appeared about the radial styloid and motion of the thumb was restricted. Approximately three months later difficulty was experienced in grasping and holding objects, due to pain and spasm.

Examination revealed an indurated fibrous mass on the radial styloid which was not continuous with the underlying bone. Pain was experienced upon manipulation of the thumb and exquisite pain experienced upon ulnar flexion with the thumb flexed within the palm.

Approximately thirteen months after the onset of the symptoms the man was operated upon at the Broad Street Hospital. The constricting band of dense fibrous tissue was excised. Occasional thumb motions were insisted upon each day and regular exercises begun at the end of one week. The man returned to work one month after operation and when last examined two months after operation was symptom free.

Other fibrous tendon lesions are first treated by means of infrared radiation, vigorous massage, active motion, and controlled passive motion, only a slight increase being attempted upon each visit. If sufficient malfunction continues after three months to interfere with normal work or to cause discomfort, or if the involved joints are sufficiently mobile, plastic operation may be attempted. This is facilitated by the implantation of a tube

of colloidin, which becomes surrounded by a sheath of thin flat cells. The tube is then removed and the tendon may be placed within the new sheath.<sup>7</sup>

## Conclusions

1 Swelling of a tendon sheath, partial rupture, and aseptic tenosynovitis are best treated by immobilization.

2 Furling, complete rupture, and dislocation must be corrected by operation.

3 Gonorrheal tenosynovitis is best treated by immobilization during the acute stage, with early physiotherapy.

4 Tuberculous tenosynovitis may be first treated by immobilization, ultra violet radiation, and improved hygiene, but the entire process must be removed surgically if progression takes place or if a cure is not effected within six weeks.

5 Immobilization occasionally cures De Quervain's disease but surgical removal of the constricting ligament is frequently necessary for relief.

6 The other chronic fibrous tendon lesions should be treated by physiotherapy, plastic repair being performed only to relieve persistent discomfort or disability.

30 East 40th Street

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## THE SECRETARY AT THE PHONE

The office secretary may help or hinder the doctor in many ways, said a speaker before the Michigan State Medical Society.

Some of the doctor's success in getting and holding his patients depends upon the manner in which the telephone is answered. There have been cases where a patient calling for the doctor is merely told "The doctor is not in" whereupon

he hangs up and may or may not ever call again. How much better to have said "Dr. Blank is out right now but I think I can reach him. Is it anything urgent?" A continuation of the conversation very likely would arrange for an appointment, or at least a satisfied feeling on the part of the patient even though it was necessary to wait some time for the doctor.

# A CONSIDERATION OF INCOMPLETE ABORTION COMPLICATED BY FEVER

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THE treatment of incomplete abortion is a subject of controversy. This is particularly true if the patient presents a complicating febrile reaction. Rather than become involved in a comparison of the merits of opposing methods of therapy, this report will outline the form of treatment carried out, and the results obtained, at Bellevue Hospital.

At Bellevue Hospital the care of patients suffering from abortions is a problem of magnitude. About 20 per cent of the patients admitted to the Gynecological Service suffer from this condition. Previous to October 1, 1934, a conservative policy was followed in their treatment. This consisted in the removal of visible pieces of placenta by means of the sponge stick, in the use of packing to control hemorrhage and to encourage complete expulsion of the sac, and bed rest. While excellent results were obtained, prolonged hospitalization accompanied often by uterine bleeding and sometimes by fever, occurred in some of the patients. Because of this a more active form of therapy was adopted on October 1, 1934. This treatment has been carried out up to the present with few modifications. The following outline illustrates the manner in which these cases are handled.

Immediately upon admission, a detailed history, the results of physical examination, a blood count, urine examination, and sedimentation rate are obtained. Fever above 102 F is regarded as an indication for blood culture, both aerobic and anaerobic media being used. Surgically clean gloves are used in the vaginal examination. On speculum examination

any placental tissue that can be seen presenting in the cervix is removed with a sponge stick. Culture is made on a blood agar plate. The proper facilities for anaerobic cervical cultures are not available. If bleeding is excessive, the vagina is tightly packed with sterile gauze. An attempt is made in each case to classify it as to whether the abortion is complete or incomplete, febrile or afebrile. In patients with fever, a clinical estimate is made as to whether the cause is intra-uterine or whether the process has spread past the uterus in the form of parametritis, suppurative thrombophlebitis, peritonitis, or septicemia.

The following day (twelve to twenty-four hours later) the findings are checked by the resident gynecologist. The result of the cervical culture is reported. If evidence is found that the abortion is incomplete, with no signs of extrauterine spread of infection, and these findings are confirmed by one of the visiting staff, a curettage is performed. The only cases excepted from this routine are those patients showing cervical cultures with a predominance of hemolytic streptococci, those showing evidence of extrauterine spread of infection, and those thought to be complete abortions.

The consideration of the patient with incomplete abortion accompanied by fever is the most serious problem that is encountered. It has been traditional in many institutions to avoid surgical procedures in such cases because of the likelihood of spreading the infective process. This stand is often taken on the basis of fever and not on the basis of fever together with a consideration of general

*Read at the Annual Meeting of the Medical Society of the State of New York, New York City, May 12, 1938*

TABLE 1—TOTAL ABORTIONS OF ALL VARIETIES

1	Complete abortions	222
2	Left hospital A. O. R. Status undetermined	30
3	Hemolytic streptococcus pallidus	9
4	Cases not considered because of unusual features	7
5	Incomplete abortions without fever	568
6	Incomplete abortions with fever but no evidence of spreading infection	370
7	Spreading postabortal infections	42

and local signs. The majority of patients of this type show evidence of retained, infected placental remnants but no evidence of spreading infection. Evidence for the latter is shown by parametrial thickening, tenderness, and fixation, or by the general condition of the patient. If such evidence is present, palliative treatment is instituted regardless of whether the abortion is incomplete, unless intervention is forced by excessive hemorrhage. On the other hand, patients with incomplete abortion and fever, presenting a freely movable uterus and no parametrial thickening and tenderness, are subjected to curettage. The history of previous instrumentation is not regarded as a deterrent to this procedure. However, when the cervical culture is reported as showing a predominance of hemolytic streptococci, operative intervention is postponed.

The operative work has been handled in the main by the house staff under the supervision of an attending gynecologist. Each patient is examined under anesthesia and the findings are recorded. If the uterus is found to be larger than a ten weeks pregnancy, 1 cc of pituitrin is given and the larger placental fragments are removed with a sponge stick. Following contraction of the myometrium, the cavity is curetted, using the sharp instrument. When the uterus is found to be smaller, the latter procedure alone is used. Packing is rarely necessary and is used only when profuse bleeding occurs and then only after being certain that all retained material has been evacuated. When used it is always removed twelve to twenty four hours later.

These patients are allowed out of bed the next afternoon if the temperature remains 99 F or below. If the temperature remains below 99 F, they are dis-

charged on the second or third postoperative day, providing no contraindication is found on the discharge examination. An effort is made to follow these patients. As yet there have been no serious results after leaving the hospital. Two patients have been readmitted for a second curettage twenty days after discharge, because of continued bleeding, and additional placental tissue has been removed.

Having considered the general scheme of treatment, we may refer to 1,248 cases of abortion admitted to Bellevue Hospital between October 1, 1934, and July 31, 1937. These occurred among 6,507 admissions to the Gynecological Service and comprise 19 per cent of the total number of patients treated during this period. As can be seen from Table 1, these cases can be divided into several groups. Groups 6 and 7 are those to be chiefly considered and Group 5 may be included for the sake of comparison.

Group 7 may be passed over briefly. It consists of 42 cases who showed clinical evidence of a spreading infection. With but 3 exceptions these patients received palliative treatment. In 2 patients a large piece of placenta was removed because of excessive bleeding. In the third a posterior colpotomy was performed. These patients were treated, with these exceptions, by rest, high caloric diet, and transfusions, repeated as frequently as the blood picture indicated. Ileus, when present in the early part of the course, was combated by suction drainage of the stomach, and by the intravenous use of fluids. Fourteen deaths occurred in this group. Fourteen of the patients in this group admitted intrauterine manipulation previous to admission.

Groups 5 and 6 consist of 938 cases of incomplete abortion who received active surgical treatment. In classifying the postoperative course of these patients, any temperature 100 F or above, disregarding the first twenty four hours after operation, was considered evidence of morbidity. Group 5 (Table 2) is made up of 568 cases without fever, who were sub-





FIG 1 Mrs. R.—Abortion induced with catheter. Admitted to hospital with fever 101 F and vaginal bleeding. Section of curettings showed acute deciduitis. Hematoxylin and eosin.

TABLE 2.—INCOMPLETE ABORTIONS WITH NO EVIDENCE OF SPREADING INFECTION TREATED BY CURETTAGE

	Number of Cases	Afebrile P O	Febrile P O	Morbidity P O—Percentage
Incomplete abortion without fever	508	505	63	11
Incomplete abortion fever 100 F–101.8 F	269	220	49	18
Incomplete abortion fever 102 F or above	101	68	33	33

Of 145 cases showing postoperative fever, in only 24 did fever persist more than four days.

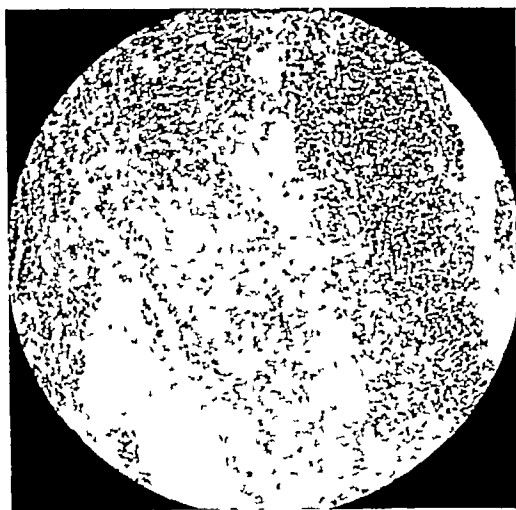


FIG 2 Mrs. R.—Section of curettings showing acute deciduitis and necrosis. Hematoxylin and eosin.

TABLE 3.—MORTALITY

Clinical Diagnosis	Number of Cases	Deaths	Percentage
Spreading infection	42	14*	33.3*
Localized infection	370	3†	0.85

\* Autopsy finding revealed 3 cases in which abortion was incidental. Mortality can be corrected to 28.2 per cent.

† Autopsy revealed one case with unrecognized perforation of uterus and intestinal injury.

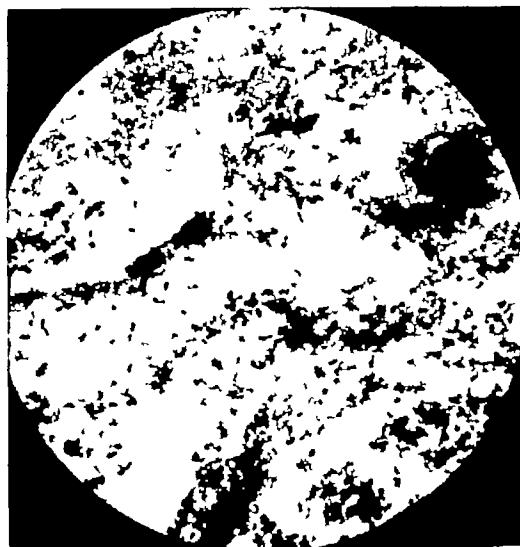


FIG 3 Mrs. R.—Section of curettings (Gram stain) showing numerous organisms in decidua. Fever dropped promptly to normal following curettage.

jected to curettage. Of these, 505 showed no postoperative morbidity, while 63 had fever of 100 F or above for a varying length of time, and incidence of morbidity of 11 per cent. There were no deaths.

Group 6 consists of 370 patients with incomplete abortions complicated by fever but with no evidence of spreading infection. This group is subdivided according to the severity of the preoperative fever. Two hundred and sixty-nine of these cases had a fever between 100 and 101.8 F. Following curettage, 220 were nonmorbid, while 49 continued to have a fever of more than 100 F for a varying length of time. This group showed a postoperative morbidity of 18 per cent, which is a fair result considering that 100 per cent were morbid preoperatively. Finally, 101 patients had a preoperative temperature of 102 F or above. In 68 the temperature

promptly dropped below 100 F following curettage, while in 33 it remained above this point. This is a postoperative morbidity of about 33 per cent, again a good showing considering the preoperative state of these patients.

Considering all the patients in both



FIG 4 Mrs. G. J.—Abortion induced with knitting needle. Bleeding for 3 days. No fever. Section of curettage showing acute deciduitis with necrosis. Hematoxylin and eosin.



FIG 5 Mrs. G. J.—Section of curettage (Gram stain) showing numerous organisms in decidua. No fever after curettage.

groups who showed a fever above 100 F following curettage, it was found that in only 24 of the 145 did the fever persist above this level after the fourth postoperative day. In 1 patient the prolonged temperature was due to rheumatic fever, in another to pyelitis.

Among these patients were 92 with a history of intrauterine manipulation, 90 of whom ran a normal postoperative course. One, a patient with a hemolytic streptococcus infection curetted by error before the nature of the infection was known, ran a typical septic course for three weeks postoperative.

Three deaths occurred among the febrile patients actively treated, representing a mortality of 0.85 per cent (Table 3). One of these deaths occurred due to an unrecognized perforation of the uterus with an intestinal injury. The other 2 patients continued a septic course in spite of the removal of the infected placenta.

*Pathology.*—All fatal cases came to autopsy. The majority showed the well known changes associated with a spreading infective process from a primary site in the uterus. However, the findings in 3 patients indicated that the abortion was incidental to another process. The primary cause of death in these cases was found to be in one instance, miliary tuberculosis, in the second, coronary thrombosis, while in the third, bacterial endocarditis. This illustrates the importance of the autopsy in compiling accurate maternal mortality statistics in this complication of pregnancy.

A large mass of material was obtained from the specimens removed at curettage. This is being subjected to a separate study and correlation with the clinical histories. Two classes of lesions were of particular interest. One was the early inflammatory lesion, a few examples of which are shown (Figs 1, 2, 3, 4, and 5). The other finding was marked chorionic degeneration, often out of all proportion to the duration of the symptoms of the patient (Fig 6). This would indicate that in many of these pregnancies, disintegration of the ovum has taken place long before evidence of impending abortion appears. Another indication that this is true is that among

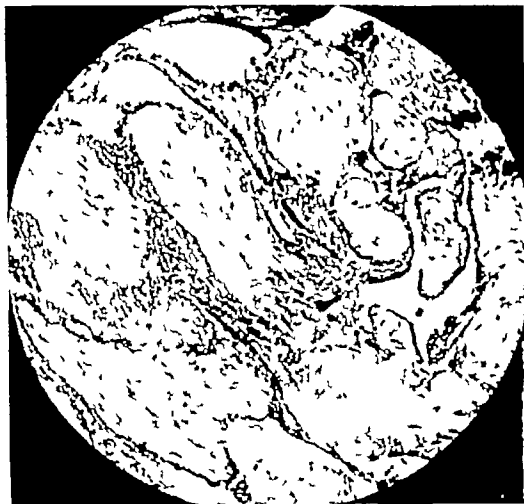


FIG 6 Mrs H—No history of induction Admitted with history of vaginal bleeding for eight hours No fever Section of curettings showing marked placental degeneration Fever of 101.8–102 F on 3rd and 4th day postoperative

the patients actively treated, 176 gave a history of bleeding for 10 days or longer before admission. This symptom often preceded the onset of fever by days or weeks.

**Bacteriology**—Reviewing the results of cervical culture (Table 4), it was found that the incidence of those showing hemolytic streptococci was 2.9 per cent. Nine of these patients were subjected to curettage. Four were operated upon before the results of culture were known. One had a severe postoperative reaction, the others recovered. In 5 cases these organisms were not predominant but were present in mixed culture. After a period of observation these patients were subjected to curettage with no ill effects. Nine cases showing hemolytic streptococcus in cervical culture were palliated. Only 2 were seriously ill. One died of septicemia. One had septicemia but recovered under treatment with sulfanilamide. The others pursued a course that gave little evidence to suggest the presence of a virulent organism. When clinical evidence of a severe infection is present, hemolytic streptococci are present in pure culture, apparently overgrowing all other aerobic organisms.

TABLE 4.—CERVICAL CULTURES

1	Total number	622
2	Hemolytic streptococcus	18 (2.9%)
	Treated by curettage	0
	Treated by palliation	0
	Sulfanilamide	2
	Deaths	1
3	Remaining cultures showed large variety of organisms—usually mixed infection	

It is probable that some of these positive cultures, particularly those showing a mixed infection, represent an avirulent strain. The technical assistance necessary to prove this point was not available. The remaining cultures showed a variety of organisms, a mixed culture usually being present. Those commonly found included *B. coli*, streptococcus viridans, staphylococcus, diphtheroids, and indifferent streptococci. No special study was made on these cultures. Anaerobic cultures were not carried out. These findings are of interest in emphasizing the fact that sulfanilamide therapy can give us little help in combating this type of infection.

**Etiology**—Of the entire group, an indication was given in the history as to a possible cause for the abortion in 351 instances. In 117 the factor was traumatic, such as a kick, blow, fall downstairs, etc. In 108 induction by means of some drug was admitted. In 126 actual mechanical interference was a factor. Many of the patients presenting incomplete abortions with fever resolutely denied any interference. While many of these patients may have been withholding the truth as to the origin of their abortion, nevertheless the author believes that infection of an early pregnancy or of an incomplete abortion can take place spontaneously. This is impossible to prove on patients who present themselves for the first time with vaginal bleeding and fever. However, 2 patients have been seen this year who developed spontaneous infections of early pregnancies while under medical observation (Chart I). In both, disintegration of the ovum probably preceded the onset of infection. In both cases the fever immediately subsided following curettage.

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Ward

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Room No

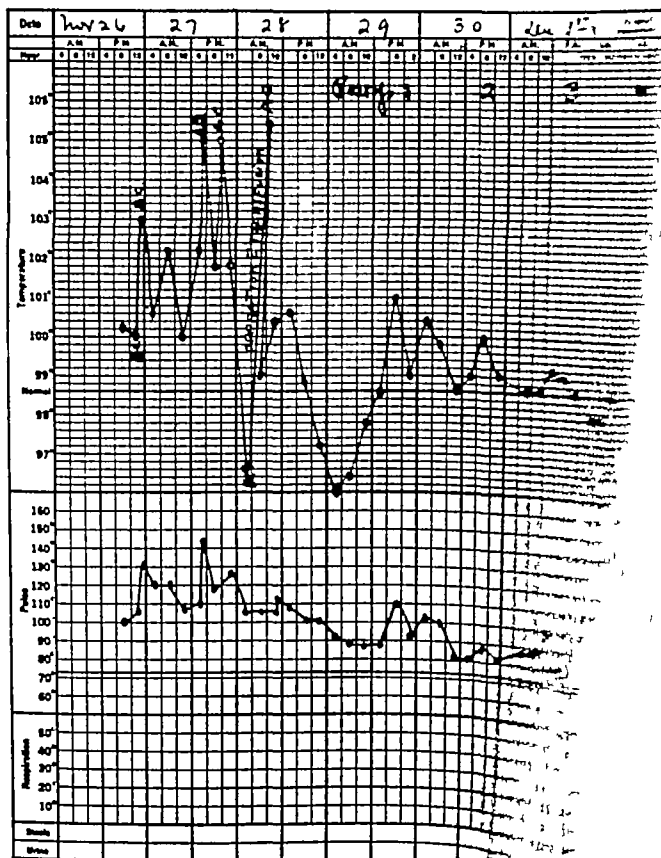


CHART I Mrs. H. R. Under medical supervision from beginning to have dark bloody discharge at 8th week. Corpus luteum hemorrhage and fever at 10th week. Prompt recovery following curettage. History of early pregnancy (dead ovum?)

### Hospitalization

During the first year of active treatment of incomplete abortions, the average stay for all patients treated by curettage was 75 days. During the succeeding twenty two months the average hospital

stay was reduced to 40 days postoperative of operation. It is seen that the average stay was abnormally reduced following curettage.

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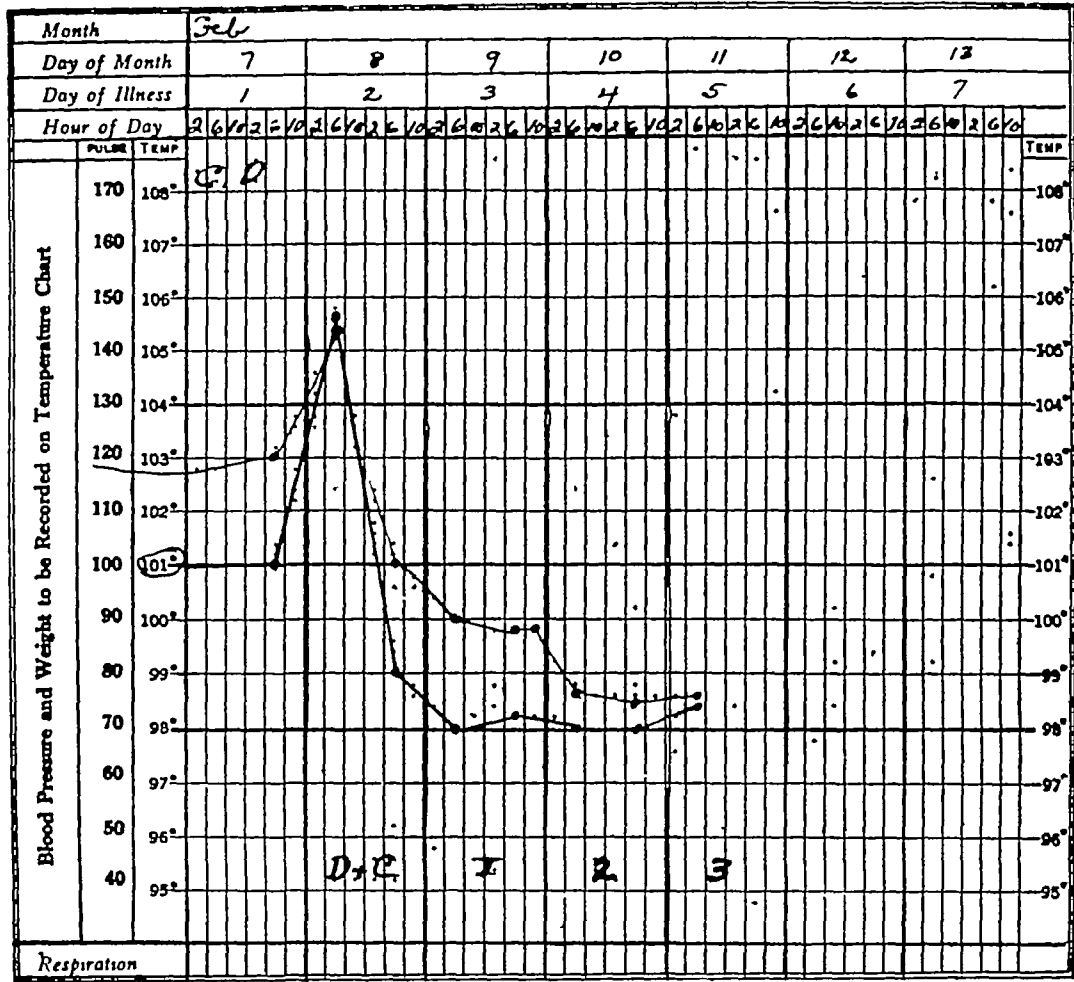


CHART II

parametritis with consequent prolonged hospitalization. The longest of these entailed a total stay of fifty-three days. Also included are 2 instances of perforation of the uterus at the time of curettage. These patients recovered uneventfully after a laparotomy and a repair of the uterine laceration.

**Mortality**—The mortality for the entire group is 1.2 per cent. Eliminating the 3 cases who at autopsy showed other reasons for death, the mortality may be corrected to 1.1 per cent. This compares most favorably with the mortality at Bellevue Hospital due to abortions from 1920 to 1933 when extreme conservatism in treatment was practiced. In this time there were 7,184 abortions with 107 deaths, a mortality of 1.48 per cent.

The following are fairly typical examples of the clinical course of cases receiving active treatment, the charts showing the temperature and pulse in these patients.

**Case Reports**

Mrs. K. D. (Chart II) aged 42, para 4, gravida 5. Entered hospital complaining of chills, fever, cramps in lower abdomen, and slight vaginal bleeding in the third month of pregnancy. Symptoms followed repeated introduction of catheter into uterus. No evidence of spreading infection. Cervical culture negative for hemolytic streptococcus.

Mrs. M. M. (Chart III) aged 21, para 3, gravida 4. Entered hospital complaining of chills, high fever, and slight vaginal bleeding. These symptoms followed repeated introduction of catheter into uterus in second month of preg-



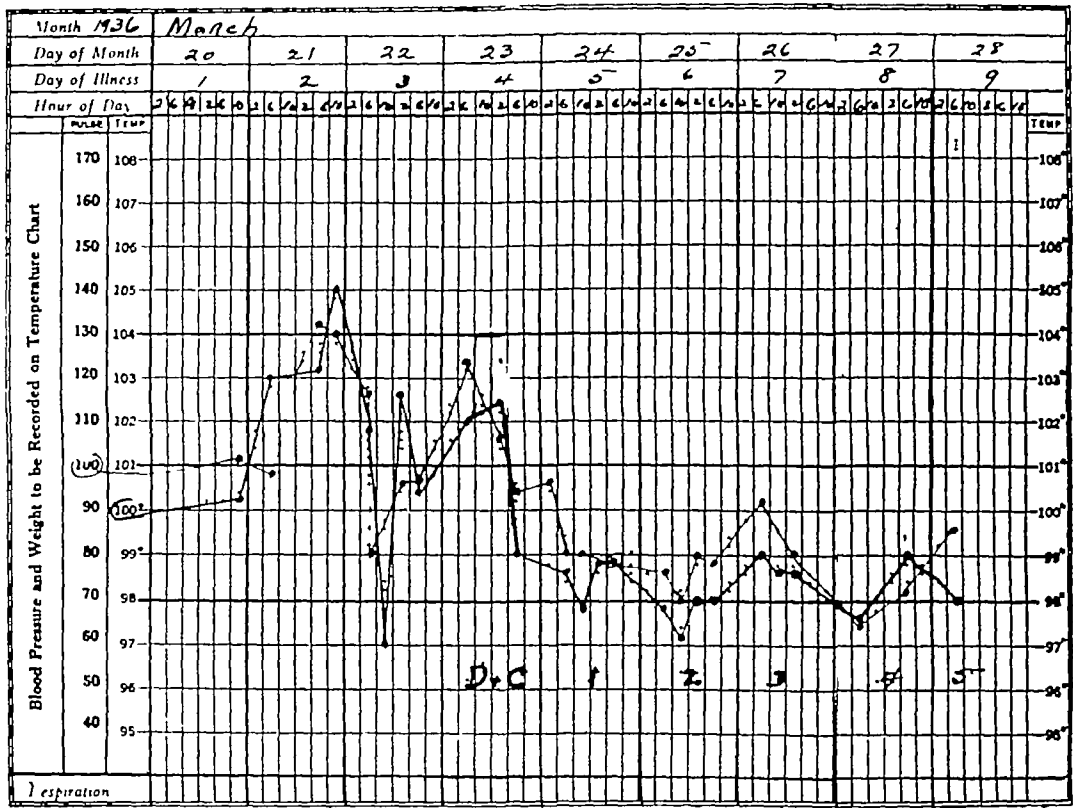


CHART IV

ance—the leukocytic wall of Bumm—and allowing the infection to become widespread Obviously, from these results, this principle does not hold true in a large majority of carefully selected cases It is necessary to gain a different concept of this condition This concept is not new but rather a return to an older one It can best be illustrated by considering the postpartum uterus It is a generally accepted fact that the postpartum uterus at term becomes contaminated with organisms within a few days of delivery Providing the uterus is free of all secundines, this contamination is tolerated without clinical symptoms in the majority of patients The organisms are disposed with as the endometrium regenerates, and by the end of about the fourteenth day postpartum the uterine cavity again becomes sterile On the other hand, should fragments of membrane or placenta remain in the uterus, the picture changes Such patients often become febrile and have a profuse, foul lochia

Apparently the presence of necrotic remnants of the ovum favors the growth of these relatively avirulent organisms Fever drops promptly to normal following the expulsion of these fragments On the other hand, should this process continue uninterrupted, it is possible that these organisms may gain virulence, become invasive, and cause serious consequences We feel that we have seen such cases If such a process follows full-term delivery how often must it follow early abortion in which retention of fragments of the ovum is more frequent? In addition, interference with unavoidable contamination of the uterine contents with exogenous organisms is much more frequently encountered in early pregnancy Fortunately in these cases the organisms introduced are often not of a rapidly invasive character The prompt evacuation of such material removes a focus of infection, and allows the healthy viable uterine tissues to dispose of the remainder of the contaminating organisms This is

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## DEPARTMENT OF HOSPITALS

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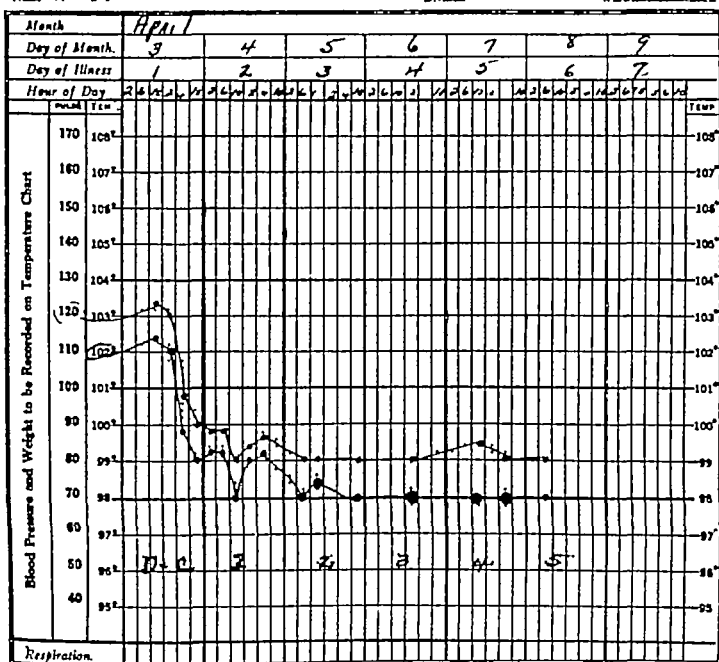
Ward *X-2*

CHART V

believed to be the explanation of the results we have obtained

### Conclusions

1 Spreading infections, associated with incomplete abortions, may occur early, due to the presence of a virulent, invasive organism such as the human strain of hemolytic streptococcus

2 Similar spread of infection may take place late in the course of this process due to an increasing virulence of or a decreasing resistance to a relatively avirulent organism such as the anaerobic streptococcus. Continued blood loss can be considered as one generally accepted factor in the lowering of resistance.

3 In the majority of instances of incomplete abortion with fever the process appears to be limited largely to the uterine cavity (9-1)

4 The infecting organisms are relatively avirulent in a majority of instances. Absence of clinical signs of spread and bacteriologic study offer the strongest evidence as to the relative harmlessness of organisms

5 In such patients in the absence of virulent organisms, particularly the hemolytic streptococcus, the uterus may be evacuated thoroughly with a sharp curette with little danger to the patient. This procedure results in the large majority of instances in a rapid disappearance of



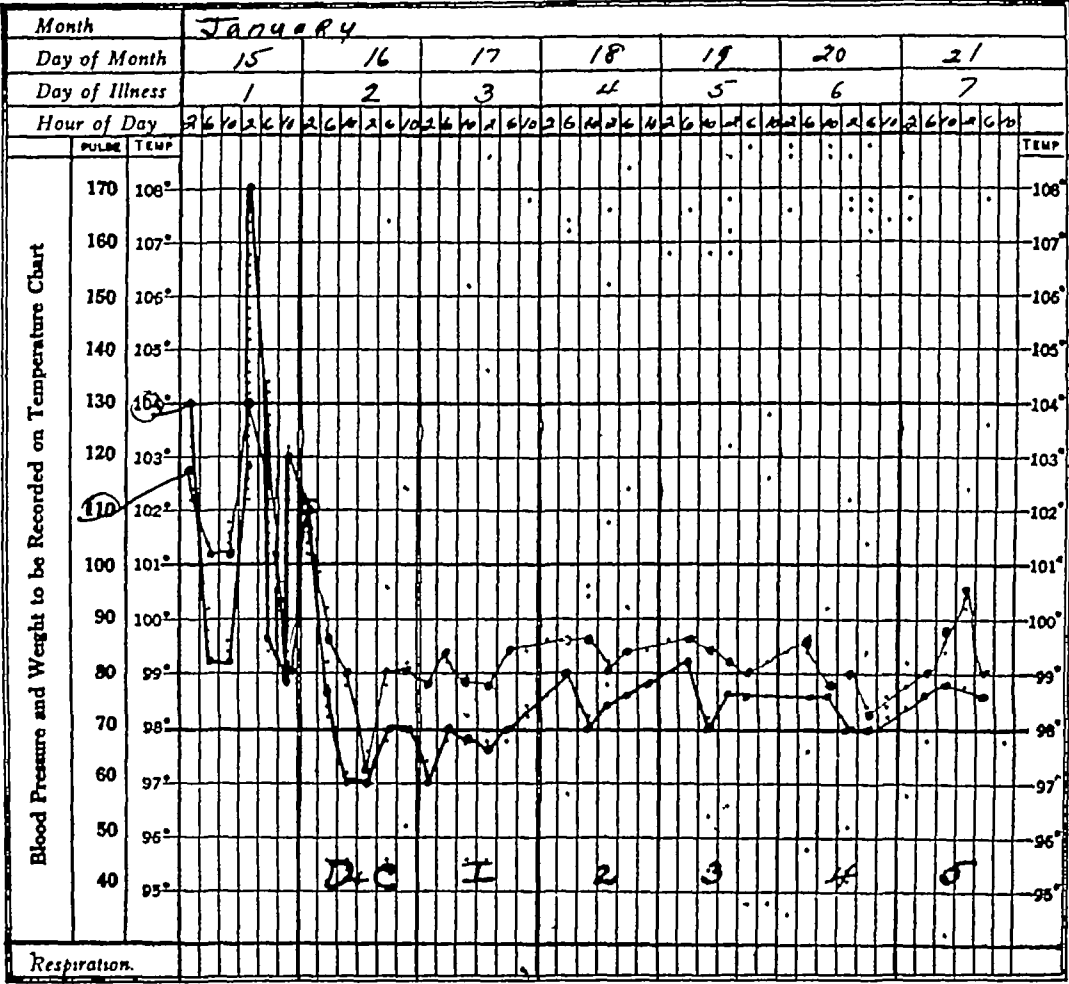


CHART VI

fever and a minimum of serious after-effects

Discussion

Dr Harvey B Matthews, Brooklyn—Times are changing We are passing through the most trying time in the history of our country Never in our 150 years of existence have great masses of our people had to struggle as hard for a livelihood It is not surprising therefore that pregnancy is not wanted and that the problem of abortion constitutes one of the major causes of maternal mortality If we could control the abortion problem we could reduce our maternal mortality by about 20 per cent, to say nothing of the morbidity—temporary and permanent—which follows in those who do not actually die It is a tremendously important problem

There are two ways to approach the reduction of the incidence of abortion, viz (1) education of the public in sane contraceptive methods,

and (2) a better understanding by the profession of the pathology and management of abortions, especially the incomplete type accompanied by fever

As to the first proposition, we shall not discuss it at this time It would be out of place I must say, however, that I believe intelligent contraception or birth control, call it what you will, is the most important means of reducing the incidence of abortion—and I am still old-fashioned enough to believe that “an ounce of prevention is worth a pound of cure.”

As to the second proposition, I think Dr Studdiford is on the right track We can agree with all he has said regarding the management of abortions, until we reach the group of incomplete abortions with fever Here, also, we are often partially in agreement, for we do evacuate the retained secundines, even in the presence of fever, if the cervical os is open and we can enter the uterine cavity without dilatation of the

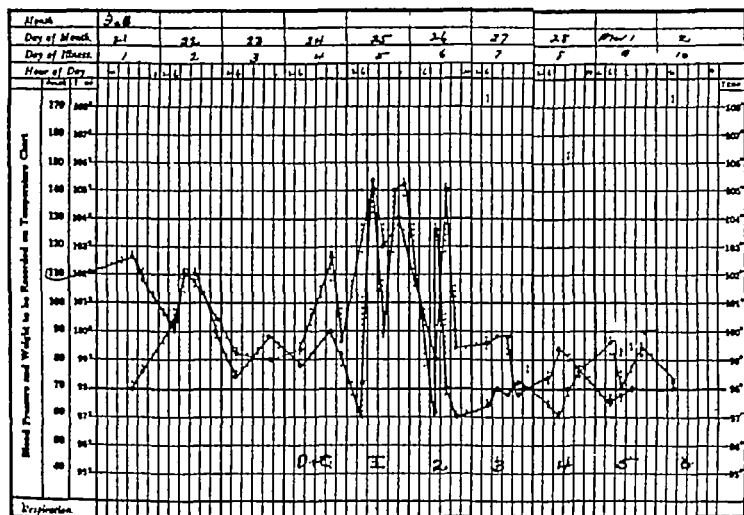


CHART VII

cervix I say we evacuate the uterine content with finger or forceps—never with *curette*—and most certainly not with a sharp *curette* as Dr Studdiford recommends. Again I am old fashioned enough to believe that nature is a pretty good doctor—often more successful than mere man. It is true that man can often aid nature in her protective and reparative work and it is also true that man can break down the protective barriers of nature and thereby cause more harm than good. Postabortal infection is a wound infection and hence is a localized infection. Nature throws out a protecting zone of resistance—the leukocytic wall of Bumm—and when this is broken down the infection becomes widespread. This I believe is true. It is also true that we may have an avirulent strain of bacteria and still have high fever in which case I think evacuation of the retained secundines is entirely in order. But never *curette* especially with the sharp *curette*. I think this is distinctly bad practice. We are not all in as fortunate a position as Dr Studdiford and hence we cannot have the bacteriology done as he has it done. Consequently for fear we may have a hemolytic streptococcal infection as the cause of the fever we prefer to treat this type of case *conservatively*. We must be prac-

tical and use good common sense when there is no laboratory to guide us.

The mortality rate of Dr Studdiford's series of cases was 11 per cent. The preceding group of cases at Bellevue Hospital—1920 to 1933—treated by extreme conservatism was 148 per cent. Not enough difference to quarrel about. However, Dr Studdiford's cases did not require nearly as many days in the hospital which certainly is important nowadays.

In conclusion, I would like to compliment Dr Studdiford on this investigation. He has "started something" that has great potentialities for the better management of abortions. For the present, at least I cannot agree that the incomplete type of abortion with fever 101 F or higher should be *curetted* with a sharp *curette*. There may be an occasional case that we have handled from the beginning of the abortion and know fairly certainly that there is no active infection present that we would in fact do empty out, but not with the *sharp* *curette*. We evacuate with placenta forceps or finger or occasionally a *thick, dull* *curette*. Furthermore I do not think it is good teaching for residents, interns and students for much harm and many deaths could accrue from routine *curettage* with a sharp *curette* in the hands of those less trained

than Dr Studdiford. I heartily agree that those cases with spreading parametritis and/or peritonitis, particularly of streptococcal origin, should be treated *conservatively*.

Dr Thomas C. Peightal, M.D., *New York City*—Doctor Studdiford has wisely chosen only to report the method by which for three years he and his associates at Bellevue Hospital have been treating incomplete abortion, and to emphasize the advantages of operative interference to the group of patients so treated rather than to revive here the age-old controversy as to the merits of a conservative or radical therapy. I feel, therefore, that in discussing his paper I too must side-step this controversy and appraise his contribution to this program solely on the method of treatment it offers.

A glance at the literature of the past three years will show that since the work of Schwarz in St. Louis many clinics have undertaken a more active operative treatment of abortion with results which are equal to, and in some instances, better than the figures shown in those series treated with great conservatism. Doctor Studdiford's study is an outstanding example.

During the past six years on the Gynecological Service of the Roosevelt Hospital we have treated 355 abortions, of which 11 per cent were regarded as truly septic and which under conservative measures showed a mortality rate of 13 per cent. Of the remaining 325 cases, 75 per cent were evacuated by careful curettage, and in 25 per cent the abortion was sufficiently complete to warrant palliative measures only. We were fortunate enough to have no deaths in this latter group so that the uncorrected mortality for the total series was 1.3 per cent. The above figures definitely place our clinic among those in which active surgical treatment of abortion is practiced.

Doctor Studdiford's paper brings out many points that merit emphasis. The necessity of doing cervical or uterine cultures by both the aerobic and anaerobic methods is imperative if one undertakes active surgical treatment of febrile cases. It is only by this means that one can successfully avoid curetting that small but unfavorable group in which the hemolytic streptococcus is the predominating organism and which should at all times receive conservative therapy. In those series in which careful bacteriologic findings have been recorded, only from 1 to 3 per cent have shown the hemolytic streptococcus, while in the total cases showing positive cultures, about 90 per cent have organisms of the anaerobic type.

Another important point emphasized is that

fever alone does not contraindicate emptying the uterus, for fever in most cases is due to degenerating products in the cavity and less often to a real extrauterine spread of infection. To be able to separate these two groups clinically is the crux of the success of Doctor Studdiford's therapy. In a well-organized clinic by the methods he mentions this can be done accurately, but in the hands of less experienced men, or where less care is used in making this differentiation, active evacuation of the uterus in febrile cases may become a very dangerous procedure.

The use of oxytocics before curetting the abortions above ten weeks' size helps in saving blood loss and keeps the use of packing to a minimum.

To allow patients out of bed the day following curettage has seemed to do no harm in this series. We have kept our cases in bed three to four days.

Doctor Studdiford's results in the various groups are worthy of note. In Group 5, where 568 cases without fever were curetted, the showing of only 11 per cent morbidity and no deaths, even though many of these cases must have had previous intrauterine manipulation, speaks for the safety of this therapy. In Group 6, of 370 cases all having fever over 100 F, it is remarkable to note that in 269 with temperature between 100 and 101.8 F, 80 per cent became afebrile after evacuation of the uterus, and that in 101, where the temperature was 102 or over, 67 per cent became afebrile when so treated. The patients of Group 6 receive most benefit from active treatment, for many would remain morbid, no doubt, a longer time until the uterine contents would be autolyzed. This study of these cases helps to allay the usual fear of invading a uterus in which there is a history of previous intrauterine manipulation, for out of 92 such cases running a febrile course, 90 showed no morbidity after evacuation. Here again it is important to emphasize that one must rule out the hemolytic streptococcus by preoperative cultures. The fact that only 3 deaths occurred in all the 370 febrile cases curetted—a mortality of 0.85 per cent—should be noted. It is evidence of the care and skill used in differentiating the nonseptic from the septic cases and of confining active measures strictly to the former group. The bacteriologic studies and the number of days of hospitalization (6.9) compare favorably with similar series recently reported, and the total mortality rate of 1.1 per cent is not only better than in most reported groups treated conservatively, but is the best of any actively treated series I have found.

Doctor Studdiford establishes his conclusions

that 90 per cent of febrile abortions are not truly septic and that operative interference in these cases is safe, shortens hospitalization and in some instances may prevent a late spread of infection. He proves his contention that the sharp curette will not spread infection but he does not tell us how much permanent damage it may do to a regenerating endometrium which must prepare itself for future pregnancies. Most gynecologists, in curetting abortions for bleeding have seen instances in which subsequent menstruation has been seriously impaired by overcurettage, and varying degrees of secondary sterility have resulted. The sharp curette is necessary to remove adherent placental fragments in many cases but I believe its use should be limited to this indication only and then great caution should be observed to avoid excessive depletion of the endometrium.

It would seem to me that the most valid criticism that can be leveled at those of us who

practice more or less active operative treatment in incomplete abortion is not along the line of spread of infection for the statistics from Doctor Studdiford's group from our group and from others in the literature confirm the safety of such a procedure. Rather this valid criticism concerns the permanent damage that may result to the endometrium by sharp curettage and the subsequent effect this damage may have on future fertility. Until we study our cases with sufficient follow up to know what effect sharp curettage has on subsequent menstruation we are overlooking a possible detrimental effect far more important than the danger of spread of infection and which may well outweigh any advantage gained in shortening the period of incapacity from abortion. Active surgical interference in incomplete abortion can be said to be fully justified only if it decreases the mortality and if it does not increase the likelihood of secondary sterility.

## TRANSFUSION SYPHILIS

The rather disquieting statement that the performance of a blood transfusion without previous physical examination and a blood test for syphilis although plenty of time in which to do them is usually available seems to be a common practice, is made in the *New England Journal of Medicine* by Francesco Ronchese, MD dermatologist at the Rhode Island Hospital at Providence. Patients who have given blood for transfusion have told him they never had a blood test and he adds that if this subject is brought up in private conversation among doctors it is generally admitted that everyone knows of transfusion syphilis but there is an evident desire to avoid having the fact become public.

He quotes a survey of hospitals by Levine and Katzin, reported in the *J.A.M.A.* where 136 out of 350 replying did not answer the question if a test for syphilis was made before transfusion and 91 stated that such tests were regularly omitted reliance being placed on a routine test given every six months. He continues:

Syphilis from transfusion is unquestionably a most deplorable accident. That there should be such a large number of cases a fact which is not published but is well known is without justifica-

tion. As is true of syphilis contracted in other ways the eradication of transfusion syphilis is impossible but its frequency can undoubtedly be reduced to a minimum. To this end, all cases should be punctiliously reported instead of being consigned to a pious oblivion. Health authorities should give wide publicity to such cases among the members of the medical profession and should warn them periodically of the possibility of transfusion syphilis reminding them that even the existence of an emergency is not a valid excuse for their occurrence since a Kline microscopic test can be done in an hour and a Hinton test in one and a half hours. Those in charge of operating rooms should be requested to keep in view and attached to transfusion apparatus reminders such as the following:

Have the donor and the recipient been given a blood test for syphilis today? Has the donor been questioned and carefully examined for syphilitic manifestations?

Just as on the highway good brakes and proper operation of an automobile represent a very small accident hazard, so a properly performed blood transfusion should represent a minimum hazard. Accidents will happen but they should be limited to cases where it is impossible to avoid them.

# PRIMARY TUBERCULOSIS OF THE SPLEEN

HARRY A. SOLOMON, M D, and WILLIAM T. DORAN, JR., M D, New York City

(From the Fourth Medical and Surgical Divisions of Bellevue Hospital)

WITH extreme rarity a localized tuberculous process in the spleen will progress into a large infectious splenic tumor causing a septic state from toxic absorption, a focus for the dissemination of tubercle bacilli, and blood changes of splenic dysfunction. Left alone the patient dies, splenectomy results in cure. Such a case is the following:

A C., a 30-year-old colored housewife was admitted to the Fourth Medical Division of Bellevue Hospital (Dr. Charles H. Nammack, Director) on March 26, 1935, complaining of pain in the abdomen, headache, cramps in the legs, fever, sweats, loss of appetite, loss of weight, and marked weakness. The above symptoms developed gradually after the birth of her last child nine months previously. Gestation was normal, but delivery was difficult and prolonged, requiring the use of forceps. Postpartum hemorrhage was counteracted by a transfusion of 500 cc of her husband's blood. Her condition grew progressively worse so that three months after delivery she became almost completely bedridden. At this time the abdominal pain was concentrating in the left upper quadrant, and the patient noticed a mass in this region. At this time also bleeding from the gums appeared and was profuse and uncontrollable.

The patient was born in Mississippi and lived in New York for the past fifteen years. She was married seven years. In 1918 she had influenza, in 1928 her tonsils were removed, and in 1929 she had a spontaneous abortion followed by dilatation and curettage.

The appearance of the patient on admission was that of an extremely emaciated and septic young negress. Blood drooling from the mouth was due to oozing from the margins of nonulcerated

gums. The head and neck were normal. No hemorrhages were seen in the fundi oculi. There was a toxic tachycardia. No abnormal signs were elicited in the chest.

The left upper part of the abdomen was elevated by an enlarged spleen which extended to the umbilicus and over to the midline. Its edge was somewhat rounded, its surface smooth, firm, and slightly tender, and its notch could be distinctly made out. Splenic dullness extended upward to the seventh rib in the axilla.

The liver was diffusely enlarged, the lower border extending three fingers' breadth below the costal margin. It was distinctly tender. Only a few shotty lymph nodes in the groin were palpable. There were no neuro-organic signs.

## Laboratory Data —

Blood Pressure—100/80, Temperature—irregularly remittent around 102 F.

Urine—albumin trace, microscopic negative, urobilinogen negative.

Blood Count

R B C—2,900,000

Hgb—69 per cent

Platelets—50,000

W B C—4,000

Polymorphonuclears—70 per cent

Malarial parasites not found after adrenalin injection.

Bleeding time—20 minutes

Clotting time—8 minutes

Retractile clot—2 hours

Wassermann—negative, icteric index—4, Van den Bergh direct and indirect—negative.

Nonprotein nitrogen—32

Sugar—95

Cholesterol—200

Seralbumin—3.3

Calcium—14.6

Phosphorus—3.1

Serglobulin—2.5

Frailty of red cells—hemolysis began at 0.45, complete 0.3; control hemolysis, normal curve complete 0.25.

Sugar Tolerance—normal curve

Congo Red—84 per cent of dye recovered at end of one hour

Gastric analysis—free HCl—low

Stools—negative for ova or parasites no occult blood—repeated examinations

Glycogen—Best stain negative

Widal—negative blood cultures— aerobic and anaerobic—repeatedly negative

B. Melitensis—positive 1-40 negative 1-80—repeatedly

Tularemia—negative

*X ray Studies*—The lungs were normal. There were no osseous changes, no calcification in the region of the spleen or abdominal lymph nodes. The stomach was displaced to the right, and the splenic flexure (Fig. 1) downward by the splenic tumor.

The working diagnosis at this time was infectious splenitis and hepatitis. The fever was ascribed to toxic absorption and the blood changes to splenic dysfunction. There was inadequate evidence for malaria, Hodgkin's disease, Gaucher's disease, cirrhosis of the liver with splenomegaly, recituloendotheliosis, schistosomiasis, amyloid disease, Gierke's disease, thrombosis of splenic vein, etc.

One month after admission, i.e., ten months after the onset of symptoms, a large, soft lymph node appeared in the left inguinal region. This was removed for biopsy and the histopathologic diagnosis reported by Dr. Douglas Symmers was tuberculous adenitis. "Distorted lymph node architecture with numerous small discrete and conglomerate circular collections of large clear epithelioid cells with centrally placed giant cells of the Langhans' type."

Increasing enlargement of the spleen and also of the liver was definitely noted. The former now filled the entire left abdomen, the edge of the latter extended to the umbilicus.

With the patient going progressively downhill and the diagnosis still in doubt, Dr. William Doran removed a piece of the spleen for biopsy under spinal anesthesia rather than hazard splenic puncture. At this time also there appeared a left pleural effusion. Thoracentesis



FIG. NO. 1. Case No. 1. X ray showing displacement of the colon by the enlarged spleen.

yielded 1,200 cc. of an amber-colored exudate. A smear of the centrifuged sediment showed mostly lymphocytes but no organisms. The culture of the fluid was sterile. Following removal of the fluid, the x ray of the chest was again negative. Direct extension of the inflammatory process through the left diaphragm from the infected spleen apparently was responsible for the pleural effusion. The biopsy of the spleen was reported to be tuberculosis splenitis (Figs. 2 and 3, page 1290).

Although the tuberculous infection now appeared to be a rather generalized affair involving at least the spleen, liver, abdominal lymph nodes, and pleura, the course of the condition indicated that the primary infection, as far as could be determined, was the splenic tumor, which was the nidus for the dissemination of the infection, and that if the spleen were removed local tissue resistance would probably control the secondary lesions. Accordingly, despite the extremely criti

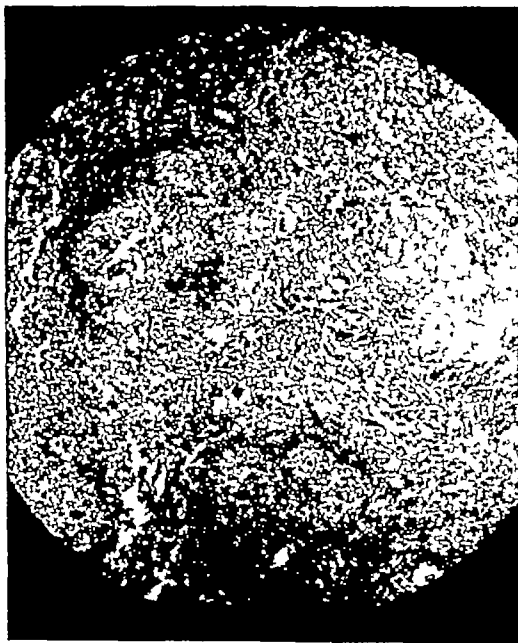


FIG No 2, Case No 1 Low power photomicrograph of section of spleen showing tubercle formation and extensive fibroses

cal condition of the patient, splenectomy was performed by Dr William Doran under cyclopropane anesthesia. Examination of the abdomen at the time of operation revealed no abdominal lymphadenopathy and no disease of the pelvic organs. Dr Doran at the time of the operation stated that the splenic artery appeared very small.

The surface of the liver was studded with small nodules. A biopsy of the liver was taken. The spleen (Fig 4), which extended well below the crest of the ilium, was adherent to and had to be torn from the under surface of the left diaphragm. It measured 25 by 13 by 7 cm and weighed 1,240 Gm. It was of grayish-blue color mottled with yellowish-gray nonelevated irregular areas 0.2 to 0.3 cm in diameter. The cut surface was reddish gray, relatively dry and smooth, with areas like those in the capsule. A large necrotic abscess was present in the upper pole. This was not studied for tubercle bacilli, unfortunately.

Microscopic section of spleen was reported as follows: "distortion of splenic architecture with extensive and ubiqui-

tous fibrosis and hyalinization. Scattered throughout the section are numerous discrete and conglomerate tubercles which consist of epithelioid cells, multinuclear giant cells and peripheral zones of lymphocytes."

Transfusions were given pre- and postoperatively.

Following a stormy postoperative

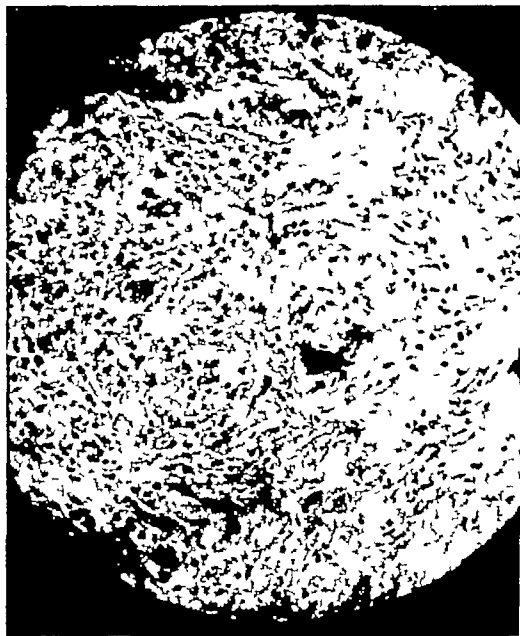


FIG No 3, Case No 1 High power photomicrograph of section of spleen

course, the patient rapidly improved. In three weeks the fever had subsided and strength returned sufficiently for her to leave the hospital symptom-free.

Three months after the operation she had gained over 30 pounds in weight and stated she felt fine and was doing her own housework, including the care of her children. The x-ray of the chest was normal, the splenic flexure was adherent to the left diaphragm, and the blood count including platelets was normal. The liver edge had receded to three fingers' breadth below the costal margin. To date she is in good health and symptom-free.

The second case of tuberculous splenomegaly was of much lower virulence. Being associated with leukopenia and

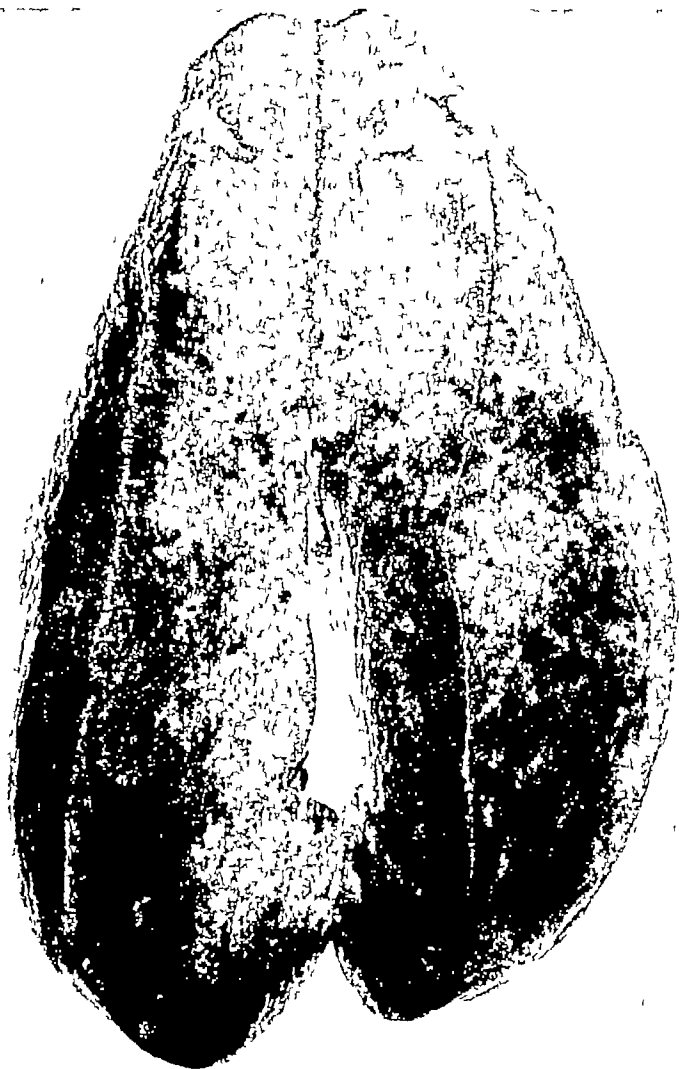


FIG No 4 Case No 1 Photograph of spleen removed at operation





FIG No 5, Case No 2 X-ray of abdomen showing enlarged spleen with irregular deposits of calcium, also calcified mesenteric gland

arthritis, it presented the clinical features of Felty syndrome

H B, a 43-year-old negress, was admitted to the Fourth Medical Division, Bellevue Hospital, complaining of pain and swelling of the joints particularly the hands, shoulders, hips, and spine, a dragging pain in the lower part of the abdomen, and a constant sharp pain in the epigastrium and left upper quadrant. The joint pains had been persistent and severe for about two years. During this time she also observed increasing languidness and a loss of 20 pounds in weight.

Five years previously she was a patient in the same ward. Complaining of abdominal pain at that time, she was found to have had an enlarged spleen and a four plus blood and spinal fluid Wassermann. Antileuetic therapy was instituted promptly and carried out adequately.

The patient was a well-developed negress with minimal subcutaneous fat and rough, dry skin. She appeared chronically ill and incapacitated by tender, swollen, and painful joints and spine. The heart was accelerated but

anatomically unimpaired. No abnormal signs were elicited in the chest. The lymph nodes were not significantly enlarged.

There were no neuro-organic changes.

A tremendously enlarged, smooth, slightly sensitive spleen extended from the sixth rib in the axilla into the pelvis. The rounded edge of its anterior border and notch could be felt to the right of the midline. The edge of the liver was palpable 6 cm below the costal margin.

The blood pressure readings were usually 115 systolic and 65 diastolic, the urine was repeatedly negative, the average of many blood counts was as follows: red blood cells 3.4 million, hemoglobin 64 per cent, white blood cells 4,200, polymorphonuclears 60 per cent. The platelet count, fragility test, bleeding, and clotting time were within normal limits. The Wassermann tests of the blood and spinal fluid were four plus. Tests for blood cholesterol, sugar tolerance, glycogen, and amyloid disease all gave normal readings. The stools were repeatedly negative for ova, parasites, and occult blood.

A flat abdominal x-ray revealed the presence of calcific deposits in the region of the enlarged spleen (Fig 5) and a calcified mesenteric node.

Both the lungs and the skeletal system were roentgenologically normal.

The diagnosis of tuberculosis was based on the x-ray finding of irregular deposits of calcium in the tremendously enlarged spleen. Supportive clinical evidence to this diagnosis was the progressive enlargement of liver and spleen associated with a low-grade septic state, leukopenia, and the fact that over a period of at least six years no other changes appeared.

### Comments

So-called primary tuberculosis of the spleen was first recognized by Coley<sup>2</sup> in 1846, who reported a necropsy showing severe tuberculosis limited to the spleen. In 1912 Winternitz<sup>15</sup> was able to collect 50 cases of this condition from the litera-

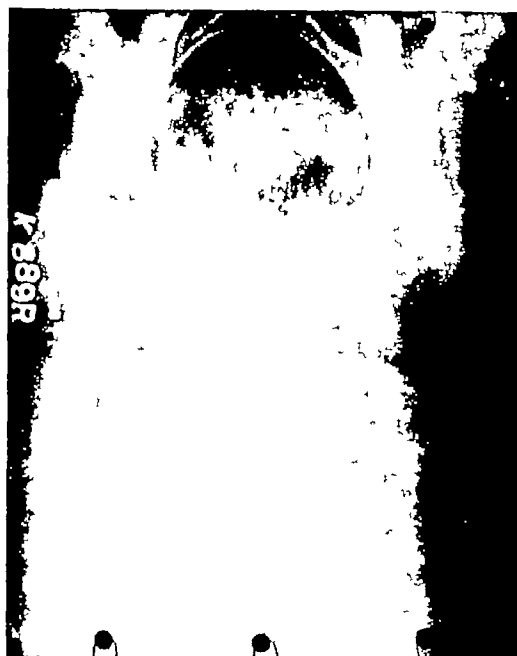


FIG No 5, Case No 2 X-ray of abdomen showing enlarged spleen with irregular deposits of calcium, also calcified mesenteric gland

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ably massive splenomegaly is present when the organ is invaded by tuberculosis. The smallest, that of Lefas,<sup>6</sup> weighed 150 Gm, and the largest, that of Rendu and Vidal,<sup>12</sup> weighed 3,710 Gm. The majority of the recorded weights are between 1,000 and 3,000 Gm.

Almost invariably splenomegaly forming a tumor is the constant sign that leads the patient and the diagnostician to localization of the pathology. All cases show this sign during the course of the disease and the very great majority record this as the primary finding.

Adjacent structures, particularly the stomach, splenic flexure of the colon, and left diaphragm may be markedly displaced, irritated by, and in the case of the diaphragm, adherent to the massive and inflamed spleen. Due to the marked splenomegaly usually present, approximately 75 per cent of the cases reviewed gave some history of pain and a sensation of weight in the left upper quadrant.

The septic state due to toxic absorption conforms to the character of the infection in the spleen. Febrile rise is usually present, but is generally below 102 F. There is the customary evening rise, night sweats, weakness, and progressive emaciation found in tuberculous processes. Magnac<sup>8</sup> reported an afebrile case and Winternitz<sup>15</sup> states that 20 per cent of his cases are afebrile. Price and Jardine<sup>11</sup> and others, reporting later, however, show no absolutely afebrile cases. Leukopenia likewise is constant. The syndrome presented by the patient is one of left upper quadrant tumor, with or without pain, a moderate degree of toxicity, a low-grade febrile course, slowly progressive weakness, and emaciation. Later in the course of the condition changes occur that result from extension of the infection and splenic dysfunction.

As a nidus for dissemination of tubercle bacilli, dead or alive, or tuberculous protein, extension by the splenic vein favors early, diffuse, and hyperplastic involvement of the liver, which shunts the infection from the blood, while, because of the spleen's minimal lymphatics,

extension to the abdominal lymph nodes and adjacent structures occurs late. This was demonstrated in both of our cases. Usually, therefore, unless splenectomy has been performed, the condition is first recognized at the autopsy table,<sup>3</sup> death occurring before general dissemination of the tuberculous infection has taken place.

Hepatomegaly with liver infestation and portal cirrhosis is the most common complication. Autopsy findings of Carling and Hicks<sup>25</sup> and others substantiate this.

Ascites, which was noted in a few cases, was due to portal decompensation and not to tuberculous peritonitis. Hemorrhage from esophageal varices was extremely rare. Gross lymph node involvement was noted in about 30 per cent of the cases. Pleural involvement by lymphatic or direct extension was found in 1 of our cases, but tuberculous infection was not proved. Pulmonary infection may possibly take place in this manner, but this is highly improbable.

To the dysfunction of the diseased spleen, probably to some extent to the liver damage also, can be ascribed the changes in the peripheral blood that are commonly present in this condition. Considering the spleen as a recituloendothelial rather than a lymphatic organ, its influence upon hematopoiesis is seen in the production of leukopenic anemia,<sup>13, 21, 22, 23</sup> polycythemia,<sup>12, 14, 17, 18, 19, 20</sup> and thrombocytopenia, etc., and considering also the pathologic changes and the pathologic physiology of tuberculous splenitis, the manner of development of syndromes such as Banti's,<sup>11, 15</sup> Felty's, purpura hemorrhagica,<sup>16</sup> etc., frequently reported in this condition, is quite apparent. Griffin<sup>22</sup> reports 1 case with the blood picture of myelogenous leukemia, another with that of aplastic anemia. Winternitz's figures<sup>15</sup> were normal blood picture in 34 per cent, secondary anemia in 42 per cent, and polycythemia in 23 per cent.

The diagnosis may in a fair proportion of the cases be revealed by the x-ray finding of irregular calcium deposits<sup>16</sup> in the

# CARE OF THE CHRONICALLY ILL FROM THE NEUROLOGIC POINT OF VIEW

ORMAN C PERKINS, M D , Brooklyn, New York

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The patient soon realizes the lack of interest on the part of the physician and travels from one to another until finally he loses confidence in physicians as a group. This lack of interest confirms previous ideas that the patient may have had that his illness was progressive and his case hopeless.

He soon becomes depressed and unhappy. Since happiness is the real indication of success, any person who is unhappy is mentally ill. It is as much the duty of a physician to treat this type of illness as it is to overcome an organic disorder, even though both exist in the same patient. The state of unhappiness many times aggravates the organic process that exists and consequently establishes a vicious cycle. In the treatment of nervous and mental diseases, the neurologist comes in contact with more patients of this group than in any other branch of medicine. He soon realizes that the gratification of the patient and the self-satisfaction on his part are just as exciting as the localization of a brain tumor or the successful treatment of meningitis.

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In the consideration of a few of these diseases, I will choose the disorders that arise in the arteriosclerotic group due to

age changes in the brain as the one most neglected. Because of the large variety of symptom complexes which may be produced by disturbances of the circulation of the brain, I shall refer to them in rather general terms.

The patient, having experienced such symptoms as headache, dizziness, unsteadiness on her feet, tremors, insomnia, or fainting spells, has been informed that she has arteriosclerosis and that she has high blood pressure. Sometimes a warning is given that she may have a stroke unless something is done immediately. Then the anxiety state develops as a result. The nervous tension increases and still more somatic manifestations develop.

The care of such a case is not limited to the treatment of the patient alone. The children or relatives with whom this patient lives must receive equal attention. They must be informed of the exact nature of the illness and be told of the proper attitude to be taken toward the patient, not to discuss her symptoms with her, not to increase her anxiety, and above all, the ways and means of making a suitable environment in which, under the circumstances, she may live. This condition is oftentimes as much of a mystery to the relatives as it is to the patient. When properly explained, they will no longer think that the patient is a "neurotic," a "chronic complainer," a "fussy old lady," but perhaps they may show the proper respect and attention that is due. This phase of treatment is, in certain instances, more difficult than the care of the patient.

The next step is to win the confidence of the patient. This takes time and patience. One must explain the condition

in terms that the patient understands. Emphasis must be placed upon the observations to be made by the patient as to her own improvement, rather than upon the physician's findings. In this way the doctor and the patient work together.

The physician in the meantime is at tempting to readjust a crippled circulation. Theobromine or theocalcine and luminal with potassium iodide not only lower the blood pressure but offer relief for the head pains, 'sinking spells,' and tremors. Symptomatic treatment for the overworked heart is essential. Daily routine is worked out for activities, rest, and diet. The state of anxiety is transformed to anticipation. As the nervous tension is reduced, many of the somatic manifestations disappear, and restful sleep is established. An additional five years of happiness in the fifth or sixth decade is as great a victory as the cure of typhoid at forty. The physician has made a friend because he has been a friend of his patient.

In cases of fresh apoplexy, do not overtreat the patient. Do not be disturbed because the blood pressure is high. Do not attempt to reduce this pressure by nitrates or nitrites as the result is transitory, and in thirty to thirty-five minutes both blood pressure and cerebrospinal fluid pressure will have returned to their original level or higher. Such rapid changes in the fluid balance of the brain is defeating nature's attempt to treat this patient, and nature is the best physician to treat the pathology above the clavicle in the first twenty-four to forty-eight hours. The physician should concentrate his attention on symptomatic treatment of the heart (and even here as little as possible) and the general care of the patient. Do not give intravenous glucose. *Clysis* or *Harris drip*, if it will be retained, is to be preferred.

When the patient regains consciousness and realizes that she has had a 'stroke,' then anxiety introduces fears and we have the element of worry to treat. Do not keep these patients in bed too long. Take

the patient into your confidence and explain what has happened and what she is to expect as to the rate of progress, that the improvement in function may be rather rapid for three or four weeks, but that it will continue for many months at a slower rate. Do not hesitate to use physiotherapy because it will not only benefit the circulation and the muscle tone, but also the morale of the patient. Teach these patients exercises. Do not allow them to become inactive. Insist that this patient is not an invalid, she is disabled, not sick.

In the State of New York we have reached the stage where we have a chronic illness as the result of improper treatment of patients. An individual receives an injury as the result of head trauma while at work. He is treated and cared for by his physician. After a time he is called before the labor commissions; he presents his case and is examined. There is a dispute and then the legal profession enters the case. The patient is allowed to sit in the room where the hearing takes place and to listen to the direct testimonies and the cross-examinations of the physicians who have examined him. This is followed by more examinations by experts. Then when they testify, the patient listens to one lawyer belittle his claim while the other legal mind discusses the most horrible possibilities that might result from his injury. Such thoughts could not develop in the patient's mind unless he was present when this drama was presented.

In this patient we have fertile soil, an injury to the head with possible injury to the brain. There is presented the possibility of epilepsy, insanity, symptoms such as headache, dizziness, and fainting spells that may persist as long as he lives. There is also the fear that he may become a chronic invalid, that he will be unable to work and support his family, or that he may become insane. The arguments by the attorney for the insurance company create antagonism and the feeling that he will not get what he deserves. This is further developed by his own attorney

when he pictures large sums of money in final settlement. Further examinations and hearings are like fuel to a fire. A weak mind becomes a sick mind. The physician who is treating this patient is often asked how long the patient will be disabled and he is expected to estimate with a reasonable degree of certainty. A prognosis is impossible under such circumstances, as treatment at best is most unsatisfactory.

This neurosis should not be allowed to develop. The legal profession should be kept out of the practice of medicine. The commissioners in the labor bureau are competent to protect the laborer's interest. The patient should not be allowed to be present at a hearing of any testimony other than his own. Finally, patients who are developing or who have developed a neurosis as a result of injury, should be treated by, or the treatment should be supervised by, a physician who has had experience in the treatment of nervous and mental diseases. Give the patient an opportunity to recover from his illness and in this way you will not only restore his earning power and his happiness, but also the happiness of his family.

The most unfortunate patients are those who have developed one of the many syndromes as a result of chronic encephalitis. This disease produces retardation of muscular movement, uncontrollable involuntary movements, abnormal postures and attitudes. The presence of these muscular rigidities, tremors, tics, dystonic, and athetoid movements not only prevents the patient from earning a livelihood but makes him conspicuous in society. These symptoms appearing in early or middle adult life force this patient to seek seclusion, avoid social groups, and as a result he becomes more and more inactive. In many instances the relatives have been told that this disease is a chronic progressive disease with no hope for cure. Subsequently they lose interest in attempting to please the patient or to make him happy. Usually they become embarrassed when their

friends visit the home and note the patient's condition.

Many of these patients are found in the chronic wards of municipal hospitals and in the state hospitals for the insane, although these patients are not psychotic. In many instances the hospitalization is due to the desire of the relatives to be free of the care and to avoid embarrassment. Even though the patient realizes the true explanation for his admission to the institution, it is not difficult for the nurses and physicians to readjust his environment so that he is happy again and takes an active interest in life. If this can be done in an institution, it is certainly much easier to accomplish in the home.

Although this patient appears disabled, he is alert mentally. He listens to discussions about his disease or is told that it is a disease of the brain. An early thought in the minds of these patients is, "Will it affect my mind?" "Will I become insane?" The lack of interest results in the loss of friends, and neglect by his own relatives is sure to produce a state of depression. He may even sympathize with his relatives for their embarrassment and wish that he were in an institution or dead. We even find some physicians deserting these patients because of the hopeless character of the disease or because of their lack of due patience in the treatment of these cases.

In the beginning we may have a disabled body but a healthy mind. The physician may not be able to correct the abnormal functions, either somatic or visceral, but at least it is his duty to keep both mind and body healthy as long as possible. The disturbances in metabolism make it necessary to watch the physical condition carefully. High vitamin diets and careful regulation of the digestive tract, proper care of the teeth, removal of foci of infection, all aid in prolonging this patient's life. Try to make living easier by alternating the use of hyoscine, duboisine sulfate, stramonium, and atropine, choosing the one which offers the greatest relief.

The most important of all is to insist

that this patient is to live, not merely exist. He is to understand his sickness and to realize that his mind will not become affected. His relatives must be treated. This patient must have friends, amusements, activities, interests, hobbies, and opportunities to share the pleasures that he desires. Although selfishness is a difficult disease to conquer, yet if the physician were to go into detail such as outlining ways and means to obtain these pleasures, it is then quite possible to influence the relatives to cooperate with him and the patient. Once this has been accomplished, we have a patient who is getting enjoyment out of life and is happy.

Fortunately for those patients who have multiple sclerosis, they are generally optimistic. Care must be taken to maintain this sense of euphoria. In this respect the relatives must play an important part. They are to be told the full significance of the disease and the emphatic need of using diplomacy in their relations with the patient. Shopping from one physician to another often produces a state of chaos in the mind of the patient. The periods of remission in this disease make it easier for the physician, as the patient is told about the exacerbations and during this period he looks forward to a stage of improvement. Although in such cases it is easier to keep up the patient's physical condition than in those having chronic encephalitis, nevertheless it is just as important as in the latter that a regular routine of living be pursued because of the subsequent useful psychological effect.

It is vitally necessary to hold the interest of these patients in hobbies and activities and to encourage the relatives to cooperate with you.

Those patients who are subject to convulsive seizures represent a group who are physically fit between attacks but develop changes in their dispositions, temperaments, and personalities, eventually having crystallized neuroses. For many years these patients have been neglected by physicians because the condition was con-

sidered hopeless. The relatives were so informed and the patient soon found it out. He was advised, as a child, not to play too hard, not to climb, not to go here or there. He was forced to leave school by the Department of Education. As he grew older, he was not prepared to assume responsible positions and if he obtained a position and had a fit, he was discharged. He became known in society as an epileptic. For such a person there were no dreams for the future, no possibilities of success in business or advancement in a profession, and, finally, no chance of a happy marriage.

If the attacks began in early adult life after the individual had experienced plans and dreams for the future, the result was equally as destructive to his mental poise.

To indict such a person is a serious offense and the responsibility rests upon the physician. Each patient is an individual problem and one must not forget that a convulsive seizure is only a symptom and not a disease. This patient should be admitted to a hospital for observation and study. The type of aura and the sequence of both symptoms and signs in the early stages of the convulsive state may indicate the location of the firing point in the epileptogenous zone. A careful history and a continued study of the patient as well as a thorough laboratory investigation may expose the precipitating factors.

Then one or two courses of attack may be chosen, either the removal of that portion of the cortex which serves as the firing point or an attempt to readjust or influence the precipitating factors may be decided upon. Until such an investigation has been completed, one should not be satisfied to treat such patients by sedation alone. If the investigation has failed to reveal causative factors, the physician must be careful not to leave the impression that the problem is hopeless but must continue to maintain the patient's confidence in order to prevent the establishment of a neurosis, and, above all, to encourage progress in all lines of



endeavor This patient should continue to study, to work, to play, and to plan for the future as any normal individual should As time goes on, the secret to his mysterious problem may be found and a cure brought about that will enable him to keep pace with his fellowmen, both in society and in the business world If this is accomplished, then the physician has won a victory that deserves more praise than any result accomplished by a radical procedure in an emergency

In conclusion I wish to emphasize that in the treatment of chronically ill patients, a physician should never lose interest in the care of his patient His efforts should be directed both to the care of the mind and of the body Usually with these patients the care of the mind is more important, as the disease process is progressive and a cure cannot be obtained However, the physician should not neglect treatment of the disease itself as there are always opportunities to offer relief of symptoms or to improve the general physical condition This will play an important part in the psychotherapy that is necessary in every case In contrast to the healthy individual where life is what he makes it, with the chronically ill life is what his physician and relatives make it

## Discussion

Dr S Philip Goodhart, *New York City*—Dr Perkins has brought a message of importance to educators and to students and physicians As he has indicated, in the mind of the practicing physician there lurks a feeling of hopelessness and with it too often a lack of interest in the case that belongs to that vast group, the so-called chronic diseases We all know that in a study and treatment of these patients, there may be great profit and, indeed, much of our richest attainments in investigation and research have been through the patient study and final pathologic investigation of chronic disease

In my many years of experience as Director of the Neurological Division of the Montefiore Hospital for Chronic Diseases, I have found most fascinating problems and enriched my modest knowledge of mental and physical disease With the fundamental idea of the value of treatment

in mind, the student is inclined to show an indifference in the study of these often bizarre problems, but even to the student it soon becomes evident that his observation and study have a highly educational value in the development of an understanding of disease of the central nervous system Nor is it a fact, as the speaker has indicated, that successful treatment is wholly lacking in the care of chronic nervous diseases In not a few instances, approach along specific lines is not lacking As examples I may mention the spectacular results in the use of prostigmine in myasthenia gravis, of iron, liver, and gastric extracts in some forms of combined sclerosis, of glycine in some cases of progressive muscular dystrophy, the occasional apparent effects of the use of the specific sera in encephalitis, and the unquestionable value of belladonna derivatives in the restoration from the sequelae of encephalitis One might mention forced spinal drainage and the surgical procedures in the intractable pains of tabes, rhizotomy, and cord resection, as well as surgical resection of the extrapyramidal pathways in the dystonias On the other hand, in dealing with the convulsive states, I agree with the conservatism implied in Dr Perkins' paper Unless these patients show unequivocal signs of a focal lesion, I believe surgery is absolutely contraindicated It is only too often that we see the very unfavorable results of surgical procedure as having no basis in a rational conception of the origin of the several types of idiopathic epilepsy

Cases of multiple sclerosis only too often present a difficult problem for the physician Keeping in mind Dr Perkins' very pertinent reminder that happiness and contentment are potent factors in maintaining the integrity of the chronic patient, I feel that the application of this in multiple sclerosis is most important I therefore would urge the victim of this condition to remain at work or occupied, rather than take him from his milieu and his interests, social and occupational

It may be truthfully said that every acute case is a potentially chronic one. Dr Perkins has called our attention to a group of cases originally acute, which are, so to speak, forced into chronicity, that is, an acute, perhaps minor organic process with a superimposition of what becomes a chronic psychogenic syndrome. For some years of experience as an impartial examiner in compensation cases in New York State, I can give confirmation to the reader's statement. These cases are only too often mishandled from their incipency and by reason of litigious atmosphere and only too frequent

medical examinations and hearings before the referee, these patients develop into a form of chronicity. Especially in mild lesions of the spine and head these cases require the greatest care and, if possible, a very early adjudication of their problem.

As in every phase of endeavor prevention is the ideal. I have often wondered whether some of our chronic nervous diseases were not originally of a psychogenic nature and through the constant and wearing stimulus and reactionary influence between cortex and thalamic and subthalamic structures through chemical and neurophysiologic activity, organicity as fixed pathology resulted. I recall a case observed by us for some eight or ten years and graphically visualized in a series of moving picture studies taken at the Montefiore Hospital. This patient originally presented what appeared to be a definite psychogenic picture. The functionally dyskinetic movements showed bizarre patterns including astasia abasia and there followed a sudden trying experience with intense emotional elements. The case developed in the course of two years into a typical syndrome of dystonia musculorum deformans. The characteristic pathologic picture seemed to emerge with suddenness and was accompanied by the disturbances of the vegetative nervous system which so often characterize dystonia. Furthermore, some years ago in our early experiences at Montefiore with the dystonias, many of these cases were regarded as functional in origin and occasionally the apparently hysterical picture which presented itself with definite dystonic elements responded to treatment under psychogenic therapy. I feel that there is a close relationship between the organic and the so-called functional with a definite structural and physiologic level in the sensorimotor centers of the basal ganglia—the motor function in the striate the sensory in the thalamus. Perhaps it is in the interrelationship between cortex and basal ganglia with their extensive relation to other organs of the body that the organic neuropsychiatrist and the psychoanalyst meet more closely in their conceptions. Therapeutic endeavor has advanced largely through modern philosophic conception of a close relation between soma and psyche.

I take great pleasure in acknowledging the debt we owe to the speaker for his able plea in the interest of the patient suffering from so-called chronic disease.

Dr John H. Nolan, New York City—I enjoyed very much Dr Perkins' paper on the management of chronic neurologic disorders. I believe that every physician should not only be

able to manage acute diseases but have a full understanding of chronic ones and this can be obtained only in a hospital that deals with chronic diseases.

I feel too as he does that this type of patient requires an attitude of cheerfulness and encouragement on the part of the doctor. I would like to make a few comments on certain disorders which he has mentioned.

*Paralysis Agitans*.—I have an acquaintance who has had paralysis agitans for ten years. He is a young man and I see him playing handball nearly every day. In this manner he has kept his arms and legs functioning at their maximum capacity. He is not getting any worse. Is able to have a good time, and is self supporting.

When one sees so many of these cases that are sitting down, doing nothing but developing arthritis and muscular deformities it shows that certainly something can be done to forestall their eventual inactivity.

*Degenerative Diseases*.—I would like to mention here that of all of the degenerative diseases of the spinal cord the one that offers the most hope is combined sclerosis providing the diagnosis can be made early.

I believe that every doctor should own a tuning fork and that he should use it as faithfully as he uses his stethoscope. I recall two cases in the past who came to me complaining of disturbances of sensation in the legs whose only abnormality was loss of vibration sense in both shins. This gave me a clue to further examine the blood and gastric secretions, which confirmed the diagnosis of pernicious anemia. Treating these people with ample amounts of liver and iron and vitamin B they are functionally well and are able to do their own work. They are not crippled in the least. The vibration sense has not returned.

In regard to the compensation cases I feel that a great injustice is being done the claimants by requiring them to wait indefinitely for the settlement of their cases and agree with Dr Perkins that medical testimony should be conducted privately.

Dr Henry W. Miller, Brewster, N. Y.—I wish to bring to your attention one phase suggested by the paper, namely the hearings before the compensation board. At a meeting of the board of delegates of the State Society a resolution was passed unanimously suggesting that the hearings before the compensation board be closed hearings. I cannot give you the exact wording but the purpose was to limit the damaging psychogenic suggestions which the patient receives at these hearings. It is expected that the

board of compensation will act upon our resolutions

Dr O L Friedman, *New York City*—I had to be in court this morning and failure to appear may subject me to contempt of court, but I risked that in order to be here and listen to Dr Perkins' paper, which was extremely interesting, timely, and illuminating

To you, ladies and gentlemen, neurologists and psychiatrists, Dr Perkins' remarks are, I am sure, quite familiar, but a review is in order

The suggestions made regarding closed hearings in certain compensation cases would be a very marked and beneficial improvement in the prevention of neurosis and psychoneurosis of those patients with disability

As one practicing internal medicine and psychiatry, I was particularly interested in Dr Perkins' remarks. I have seen quite a number of neurotics, psychoneurotics, and some psychotics, who, if treated in a humane and sympathetic attitude as suggested by Dr Goodhart, Dr Perkins, and Dr Parker, may have averted these psychiatric complications

There is a tendency on the part of some physicians to treat the disease and forget about the patient. It is a known fact that disease affects

the emotions of patients, which in turn modify the disease—a vicious cycle

A very simple and familiar illustration known to all of you, is the temporary rise of blood pressure while the physician reads it. There you find a psychologic reaction which takes place when the eyes of the patient fall upon the eyes of the doctor. Take this patient's blood pressure again under a more harmonious atmosphere and you will find a more reliable reading. By applying a humane and sympathetic psychology to a patient, apparently organic, you may find him functional

Because Dr Perkins covers these points so well, I would suggest that his paper be brought to the attention of the general practitioners who are the first to see the early cases of neurosis, psychoneurosis, and psychosis. If the general practitioner and particularly the family physician would treat the whole man and not only the disease, he would be able to place the patient in a healthier state of mind and rehabilitate him so that he might not become a mental problem superimposed upon an existing physical disability. In this manner, the physician will do a great deal of good to the patient, his family, and society at large

## WHY "DOCTORS DISAGREE"

A doctor warned trial lawyers in an address at the Syracuse Meeting that "no physician is expected to answer any question with absolute certainty"

In a paper on the physician as a witness in lawsuits, Dr Irving J Sands, of Brooklyn, reminded lawyers "who complain they cannot get medical men to agree upon anything" that "medicine is not an exact nor a static science"

"To deny physicians the right to disagree would be tantamount to stopping medical progress," he told the New York State Medical Society at its annual convention at the Hotel Syracuse

Dr Sands said in part

"On the witness stand the expert must give his findings in as intelligent and concise a manner as is possible. No physician is expected to answer any question with absolute certainty, only reasonable certainty is required

"I have heard lawyers complain that they cannot get medical men to agree on anything. As a matter of fact, physicians agree more often than they disagree. They address each other as colleagues rather than honorable opponents

"When in doubt about any phase of diagnosis or therapy, older and more experienced colleagues are called into consultation for help and guidance, and the proper treatment is rendered because a plan for management of the patient has been agreed upon by the different physicians

"Moreover, it is unreasonable to expect any group of professional people always to agree

"This is particularly true with the medical profession. Medicine is not an exact nor a static science. It is in a state of continuous growth. Newer truths are discovered almost daily. Personal experiences vary. Medical men have the same right to disagree as others have

"It is the refusal of scientific workers to accept current opinions that leads to scientific discoveries and achievements. To deny physicians the right to disagree would be tantamount to stopping medical progress. Honest differences of opinion stimulate medical thought and progress

"There is much in medicine that is still speculative, for the truth is yet unknown in many medical situations"

# THE SIGNIFICANCE OF ASYMPTOMATIC NEUROSYPHILIS

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**A**SYMPTOMATIC neurosyphilis is that manifestation of syphilis which is characterized by a positive spinal fluid test and in which there are neither signs nor symptoms of invasion or involvement of the central nervous system. When a patient manifests clinical signs that denote that the infection has involved the central nervous system, a diagnosis of asymptomatic neurosyphilis is no longer tenable and the diagnosis is based on the clinical manifestations of involvement of the nervous system.

Asymptomatic neurosyphilis may be encountered in any phase of syphilis. It is noted more frequently in early syphilis, in which the incidence approximates 35 per cent; thereafter, the incidence gradually decreases until it reaches an average of 15 per cent among those patients in whom the disease is of more than four years' duration.

The significance of asymptomatic neurosyphilis lies in these facts: (1) it is the forerunner of clinical neurosyphilis; (2) it is a type of neurosyphilis that responds comparatively satisfactorily to treatment and, in those cases in which treatment is satisfactory, the development of clinical neurosyphilis is thus prevented; (3) the results of repeated examinations of the spinal fluid can be used as fairly accurate indicators of the response the patient is making to treatment; (4) the results of repeated examinations of the spinal fluid also denote the "trend" of the disease in the central nervous system; in other words, they reveal the tendency for the fluid to change to the mild or to the severe (paretic) type; (5) in no other type of neurosyphilis is it possible to appraise as readily the results of the different systems of treatment; (6) the

effect of the various schemes of treatment gives an excellent clue to the status of the patient's mechanism of defense against the disease.

It is necessary to understand the significance of each test employed in the examination of the spinal fluid in order to interpret the results of each test intelligently in terms of therapeutic effect and prognosis. As the diagnosis of asymptomatic neurosyphilis can be made only by examination of the spinal fluid and by obtaining positive tests, it seems appropriate to digress at this point and comment briefly on the indications for examining the spinal fluid. Among patients who have acute syphilis the spinal fluid should be examined toward the end of the course of treatment and, even if a negative report is obtained, the examination should be repeated before the patient is discharged. Among patients who have asymptomatic syphilis of more than four years' duration, the spinal fluid should be examined before treatment is outlined, but among those patients who have clinically recognizable forms of the disease, such as cardiovascular, hepatic, osseous, or late cutaneous syphilis, the spinal fluid should be tested as soon after treatment is started as it is convenient to do so, or as soon as it is compatible with the patient's clinical condition. Of course, among patients who have signs or symptoms suggesting involvement of the nervous system, the spinal fluid should be examined before treatment is started. As a rule, it is not advisable to examine the spinal fluid of patients more than sixty years of age unless the test is essential to a complete differential diagnosis. Among patients who have asymptomatic neurosyphilis,

TABLE 1—GENERAL CLASSIFICATION OF SPINAL FLUIDS ACCORDING TO THE DEGREE OF ABNORMALITY OBSERVED ON EXAMINATION BY EACH OF THE FIVE INDICATED TESTS

Group	Number of Cells per Cu Mm.	Colloidal Benzoin or Gold Curve	Wassermann	Globulin	Protein, Mg per 100 Cc (Average)
Mild*	8 to 30†	0 0 0 3 3 3 0 0 0 0	Negative or weakly positive	Positive	50
Moderate**	30 to 100†	0 0 0 3 3 3 0 0 0 0 0 2 4 5 5 4 2 0 0 0	Positive or strongly positive	Positive	60
Severe*** (Paretic)	30 to 100† 10 to 30†† 10 to 30†††	5 5 5 5 5 4 3 2 1 0	Strongly positive	Positive	100

\* The *mild* group includes fluids in which the number of cells and content of globulin and protein are increased, the flocculation reaction may be negative or positive and the colloidal gold curve may be indeterminate or positive. If positive the curve is usually of the syphilitic zone type.

\*\* The *moderate* group includes fluids in which the cells number 30 or more per cu mm, the flocculation reaction is strongly positive, and the colloidal curve is the tabetic or indeterminate type. The estimate of the globulin is positive and the estimate of protein shows an increase to an average of 60 mg per 100 cc. Fluids falling just short of the requirements of the severe group are also included in this group.

\*\*\* The *severe* group includes those fluids that have the so-called dementia paralytica formula, that is marked excess of globulin content of protein averaging about 100 mg per 100 cc, a strongly positive flocculation reaction (0.2 cc or less) and the type of colloidal curves indicating dementia paralytica. The number of cells is decidedly increased and, in addition to the small lymphocytes large lymphocytes and polymorphonuclear leukocytes may be present.

† Small lymphocytes.

†† Large lymphocytes.

††† Polymorphonuclear leukocytes.

the earlier in the course of treatment that the spinal fluid is examined, the easier it will be to interpret the subsequent changes in the various tests, thus observing the trend and response of the spinal fluid to treatment. Accordingly, among patients who have asymptomatic neurosyphilis, re-examinations of the spinal fluid must be done at intervals of approximately six months if the significance of the changes in the positivity of the spinal fluid is to be interpreted accurately.

An adequate examination of the spinal fluid should consist of the following five tests:

1 *Cell Count*—This should be determined immediately after the fluid is withdrawn. If the fluid is sent to some distant laboratory the cells may disintegrate so that within twelve hours there may be a 50 per cent reduction in the number of the lymphocytes actually present. The normal spinal fluid may contain from 1 to 8 lymphocytes per cu. mm, although 8 to 10 lymphocytes per cu. mm is considered as bordering on the abnormal. The presence of more than 10 lymphocytes is considered abnormal. The presence of large lymphocytes, plasma cells, or polymorphonuclear leukocytes is associated not only with a positive spinal fluid but indicates a severe degree of positivity.

2 *Colloidal Gold Test*—This is of equal significance in determining the number of cells

present, especially if the report is abnormal, and its significance becomes even greater when the abnormality persists on subsequent examinations. This is illustrated well in the interpretation of the zone 1, or paretic type of curve (5 5 5 5 4 3 2 2 1 0)\*. One such paretic type of curve does not mean that the patient has dementia paralytica or that he necessarily will develop it. However, if, on repeated examinations of the fluid, the gold test shows a persistence of the zone 1 reaction and the other tests of the spinal fluid also give positive results, the likelihood that dementia paralytica is impending increases with each report. The zone 2, or syphilitic type of curve (0 0 0 2 3 3 2 0 0 0), is found among patients who have tabes dorsalis and sometimes in cases of asymptomatic neurosyphilis. A normal colloidal gold curve may consist of all zeros or may show a slight increase in the middle group of figures, such as 0 0 0 1 2 2 1 0 0 0.

3 *Flocculation or Precipitation Test*—This test, performed by using any of the newer techniques, is the third important examination.

4 *Estimation of Globulin*—A normal amount is interpreted as negative.

5 *Estimation of Protein*—Any amount up to 40 mg is considered normal. The estimates of globulin and protein do not indicate the type or degree of involvement of the central nervous system, but merely denote an abnormal type of spinal fluid.

\* Among patients who have multiple sclerosis a zone 1 (paretic) gold curve, a pleocytosis of 8 to 40 cells per cu. mm, an increase in the protein and globulin content, and a negative flocculation test are usually found.

TABLE 2.—TYPES OF SPINAL FLUID POSITIVITY AND ASSOCIATED TYPES OF NEUROSYPHILIS

Type of Neurosyphilis	Cell Count	Colloidal Gold Curve	Flocculation Test	Globulin	Protein, Mg per 100 Cc. (Average)
Paretic	30-100 L.L.* 10-30 S.L.† 10-30 P.‡	5 5 5 5 5 4 3 2 1 0	4 plus	Positive	100
Meningeal neurosyphilis	200 L.L. 100 S.L. 100 P.	5 5 5 5 5 4 3 2 1 0 2 5 5 4 3 2 1 0 0	4 plus	Positive	150
Tabes dorsalis	active 40 S.L.	0 0 0 1 2 3 2 0 0 0	4 plus	Positive	80
	arrested 8 S.L.	0 0 0 1 2 3 2 0 0 0	Negative	Positive or Negative	50
Meningovascular neurosyphilis	10 25 S.I.	2 3 5 5 5 3 2 1 0 0	4 plus to 2 plus	Positive	90
Vascular neurosyphilis	15 S.L.	0 0 0 1 2 4 4 2 1 0	Negative	Positive or Negative	30 60
Asymptomatic neurosyphilis	50-100 S.I.	5 5 5 5 3 2 2 0 0 0 0 0 1 1 2 2 0 0 0 0	4 plus	Positive	80
	10 70 S.I.	0 0 0 * 3 3 2 0 0 0	4 plus to 1 plus	Positive	40
Normal or negative fluid	3 S.I.	0 0 0 0 0 0 0 0 0 0	Negative	Negative	30

\* L.L. Large lymphocytes

† S.L. Small lymphocytes

‡ Polymorphonuclear leukocytes

In cases of asymptomatic neurosyphilis the spinal fluid findings may be of varying degrees, and these five tests, in various combinations, create reports that may be interpreted as indicating a mild, moderate, or severe degree of invasion of the central nervous system. The three degrees of positivity are illustrated in Table 1.

The various combinations of the five tests done on the spinal fluid have created a variety of pictures which, in addition to denoting different degrees of activity, are also pathognomonic of certain types of neurosyphilis, although others may indicate only that syphilis of the central nervous system is present. The spinal fluid findings when taken in combination with the clinical findings are necessary for a complete recognition of the type of involvement or invasion of the central nervous system. Table 2 illustrates some of the more frequent types of positivity of the spinal fluid and the types of neurosyphilis with which they are usually associated.

Comment has already been made that asymptomatic neurosyphilis is characterized by a positive spinal fluid and an absence of clinical signs of involvement of the central nervous system by the

disease. In spite of the absence of clinical manifestations, it is possible to recognize from the spinal fluid findings that different types of neurosyphilis are impending. It is not possible to make such deductions, however, from one examination of the spinal fluid, but as repeated reports of the same type are obtained while the patient is receiving treatment, the report becomes more authentic. For example, in a case of asymptomatic neurosyphilis, the paretic type of formula may be reported in the spinal fluid at the time of the first examination. If, following six months of treatment, the paretic features of the fluid persist, this finding then assumes significant proportions and, if the paretic element remains in the reports after another period of treatment lasting four to six months, it is convincing evidence that the patient has a resistant type of infection (probably of the paretic type), that the treatment given him has been inadequate, and that a change in the therapeutic program is warranted. Another type of spinal fluid report is noted among the patients who have asymptomatic neurosyphilis, who likewise manifest a paretic trend in the original test of spinal fluid but who, following six

months of treatment, no longer have the paretic features in the spinal fluid and have a spinal fluid that gives negative results on examination after the second period of six months of treatment. I believe that studies of spinal fluid similar to these two, which denote the trend of changes in the spinal fluid while the patient is under treatment, demonstrate the outstanding value of such tests. If the trend of change in the fluid is from the paretic toward the less severe types of involvement, the inference is that the program of treatment is probably adequate, but if the paretic features persist, or if the fluid relapses toward the paretic type after a rest from treatment, it denotes that a change in the therapeutic program should be considered.

A study of the results of treatment of asymptomatic neurosyphilis not only displays the values of a variety of therapeutic procedures but also portrays even more clearly the status of the patient's mechanism of defense against the disease. The basis for the data herein presented is the retrospective clinical studies on neurosyphilis by the Cooperative Clinical Group.<sup>1,2</sup> There were 5,293 patients who had syphilis whose spinal fluid was examined, and of these, 712, or 13.5 per cent, had asymptomatic neurosyphilis. The results from treatment of the group as a whole were best among the patients who had the less severely positive spinal fluid and among those who had harbored the disease for only a short time. When the paretic formula was encountered in examination of the spinal fluid, it was found necessary to adopt the more strenuous therapeutic programs and, frequently, to employ both the specific and nonspecific therapeutic agents in order to reverse the tests to negative. Among many of the patients who have mild types of positive spinal fluids and among whom syphilis is of only two or three years' duration, the response of the spinal fluid to a comparatively small amount of treatment is usually immediate and permanent. Among some patients who

manifest asymptomatic neurosyphilis, serologic negativity occurs spontaneously, and, although the incidence of these cases is not known, they are encountered often enough to emphasize the fact that the forces of immunity among certain patients are mustered without the aid of treatment early in the course of the disease and overcome the infection completely. Among the majority of patients who have asymptomatic neurosyphilis, the development of a defense reaction to the disease is successful when the efforts of nature are augmented by modern treatment, because we are able to control the disease successfully in 65 per cent of these cases.

An evaluation of the various systems of treatment that had been employed in these cases was attempted but met numerous obstacles that prevented an accurate appraisal of their individual merit. However, there were a few pertinent facts elicited as to the comparative values of routine treatment, intraspinal therapy, tryparsamide, and malaria therapy that are worthy of emphasis.\* Routine treatment alone was used in 203 cases and, by the tenth year of treatment and observation, the spinal fluids were negative in 68.5 per cent of this group. Among 199 patients who had the more resistant type of fluid, routine and intraspinal therapy reversed the spinal fluids to negative in 68.3 per cent and maintained the negativity by the tenth year after treatment. Of 47 pa-

\* Routine treatment consists of the use of one of the arsphenamines in conjunction with a heavy metal either bismuth or mercury. Six injections of arsenamine and twelve injections of bismuth constitute a course and four courses are considered a minimal amount of treatment. If mercurial injections are used, one week of injections (six rubs) is considered equivalent to one injection of bismuth. Routine treatment with arsenamine was given either continuously or intermittently and bismuth or mercury administered simultaneously or in the intervals between courses of arsphenamine.

Intraspinal therapy was given according to the Swift-Ellis, the Swift-Ellis-Ogilvie, or the modified Ravaut technique.

Tryparsamide was given in series of ten injections in conjunction with an equal amount of bismuth, with intervals of rest of two months' duration between the courses. It was the plan to give ten courses of tryparsamide and bismuth.

The electric units for fever therapy were not in use when these patients were treated, hence, the discussion in regard to fever treatment is concerned only with patients treated by induced malaria. A series of twelve malarial bouts usually constituted a course of fever therapy, although recently eight or nine periods of chills and fever have been found to be as efficient as the larger number. Post-fever therapy consisted of any one of the various therapeutic methods mentioned above.

tients who received tryparsamide, the spinal fluids were negative in 59.6 per cent at the end of five years, although of 82 patients who were given malarial therapy because they failed to respond to the other therapeutic measures 19.5 per cent gave negative results on examinations of the spinal fluid in the fifth year following the course of fever. In a small group of 34 cases, three or more combinations of treatment were successful in only 11.8 per cent of the cases. It is significant that continued treatment and observation after the tenth year changes these figures only slightly, in fact, if the spinal fluid is not reversed to negative by the fifth year of treatment there is only a small chance of increasing the incidence of negativity, even by continuing treatment. When the 565 cases of asymptomatic neurosyphilis were appraised as a group, it was noted that the spinal fluids were negative by the fifth year in 57.2 per cent of the cases and by the tenth year, in 64.4 per cent. When the appraisal was made on the basis of the method of treatment employed, complete reversal of the spinal fluid to negative was noted following routine treatment in 26.9 per cent, following routine and intraspinal treatment in 26.4 per cent, following routine treatment and treatment with tryparsamide in 5.7 per cent, following routine treatment and malarial therapy in 3.9 per cent, and following routine treatment plus two or more therapeutic combinations in 1.6 per cent.

For practical purposes these figures mean essentially that in a patient who has asymptomatic neurosyphilis, when a trial of approximately twelve injections of arsphenamine and a corresponding amount of heavy metal (routine treatment) has failed to reverse the spinal fluid, the more intensive therapeutic methods should be adopted. First, a series of six to eight intraspinal treatments in conjunction with arsphenamine and a heavy metal should be given and, if this fails to produce a negative spinal fluid, fever therapy then should be instituted. The point of significance is that, when treatment and observation are

carried out for ten years following the use of these various therapeutic plans, the spinal fluid remains positive in 35 per cent of the patients. Accordingly, there is still ample opportunity for improvement in the program of treatment of these cases.

Observation of these patients varied from two to twenty years and the study of the clinical progressions toward tabes dorsalis, general paresis and other types of clinical neurosyphilis brought some interesting facts to light. As was noted in the study of the serologic reversals, the patients who had mildly positive spinal fluid showed the lowest incidence of clinical progression, those who had the so-called parietic formula in the spinal fluid gave evidence of clinical progression more than four times as frequently. In the study of the influence of the amount of treatment, it was found that those who received small amounts, that is, less than ten injections of arsphenamine, showed an incidence of clinical progression three times greater than those who received more than twenty injections of an arsenical preparation and a heavy metal.

The studies of the flocculation reactions of the blood revealed that the result of tests of blood are not an indication of the status of the spinal fluid. As the patients included in this survey were treated and observed before the flocculation and precipitation tests were in use, the disparity between the results of examination of the blood and spinal fluid was slightly greater than would be noted if the newer serologic techniques had been employed. However, it is significant that in 14 per cent of the cases of asymptomatic neurosyphilis the blood reports were negative while the spinal fluids were strongly positive. This finding previously called to our attention on numerous occasions, stresses the need for examining the spinal fluid irrespective of the status of the serologic condition of the blood of patients who have syphilis. Patients among whom treatment for syphilis was started during the early or latent phase of the dis-



ease should not discontinue treatment even if their serologic findings are negative, until the spinal fluid has been examined and found to be negative. Among patients under treatment for early syphilis, a relapse of the blood tests from negative to positive is accompanied by positive findings in the spinal fluid in the majority of the cases. Another significant axiom regarding asymptomatic neurosyphilis is that if a patient has passed the fourth year of the disease and invasion of the central nervous system has not taken place, as indicated by the finding of a negative spinal fluid, such a patient can be assured that neurosyphilis will not develop in the years to come. The basis for this statement is the fact that if the spinal fluid has not become involved during the first four years of the disease there is a chance that in 99 per cent of the cases it will not become positive at any time thereafter.

A frequent explanation for the time-worn expression "Wassermann fast" may be found in the examination of the spinal fluids of such patients. In 75

per cent of the patients thought to be inadequately treated and Wassermann fast, the spinal fluid was positive. In other words, these persistently positive findings in the blood were due to the presence of asymptomatic neurosyphilis.

Even if the modern treatment of syphilis does not produce a "cure" in all cases, it does decrease materially the incidence of the late complications of the disease. In no manifestation of syphilis is this demonstrated more clearly than in cases of asymptomatic neurosyphilis in which the competent use of the continuous system of treatment in early syphilis has reduced the incidence of asymptomatic neurosyphilis to 7 per cent, as compared with an incidence of 23 per cent following the use of irregular and haphazard systems of treatment.

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"Because of America's heterogeneous population, it may take thirty to fifty years to control syphilis completely," Doctor R. A. Vonderlehr, Assistant Surgeon General of the United States Public Health Service, declared in his address on "The Public Health Aspects of Syphilis" before the Graduate Clinic, at Duke University, Durham, North Carolina.

The most marked success has been attained in the Scandinavian countries, according to Dr. Vonderlehr. "With a uniform population approximately one-tenth that of the United States, a period of almost twenty years of intensive work was required in the Scandinavian countries," he said. "England and Wales, with almost one-third of the population of this country and with less variable social and economic conditions, have decreased the incidence of early syphilis by about 50 per cent in two decades."

Commenting directly upon the situation in

the United States, the speaker pointed out that there is a heterogeneous population here with the most variable social and economic conditions. He also emphasized that the program here is dependent on concerted action by our political subdivisions. "Not only is the launching of a successful health program dependent upon the acceptance of the plan by the local governments," said the doctor, "but it is necessary to develop effective financial support in forty-eight politically independent states. When these factors are considered, it seems reasonable to expect that although progress may be noted after the first few years, complete success in the United States will not be attained in a period less than thirty to fifty years."

The ultimate success of the present campaign to rid the American populace of the ravages of syphilis was confidently predicted by the Chief of the Venereal Diseases Division of the Public Health Service.

## URTICARIA OF EMOTIONAL ORIGIN

### Temporary Disappearance During Syncope with Possible Explanation of the Mechanism of the Interruption of Wheal Formation

DANIEL BLITZ, M D, Woodmere, New York

**I**N A review of the literature, a case report of the disappearance of generalized urticaria during syncope was not found. On the contrary, there are many reports in which urticaria appeared during syncope in cold hypersensitivity.<sup>1</sup> It would be of interest to report this occurrence and try to explain the mechanism involved.

**Case Report**—A female, Mrs. R. L. aged 27 years seen on July 7, 1930 complained of an itching rash which suddenly appeared over the entire body. The patient had her first attack of urticaria three years previously following the death of her uncle. There was no history of food or drug allergy hay fever, or cold hypersensitivity.

A right mastoidectomy had been performed at the age of 15 years and a cholecystectomy at the age of 23 years.

The patient had never been pregnant. The last menstrual period was three weeks previously.

She attributed the present attack to an emotional upset. The patient saw her neighbor seized with a severe heart attack on July 6 at 11 P.M. She declared that this was similar to the one from which her father had died.

On physical examination there were various sized urticarial wheals covering the entire body. The temperature was normal the pulse 82 and the blood pressure was 116/80. The remainder of the examination was essentially negative.

Calcium gluconate wafers a saline cathartic and calamine lotion with 1 per cent phenol for pruritus were prescribed.

At ten o'clock in the evening of the same day I was called to the patient's home because she suddenly fainted. I arrived within four minutes and found the patient very pale and perspiring freely.

She complained of feeling weak and dizzy, but declared that the itching had entirely ceased. Upon examination the skin appeared perfectly normal and there was no evidence of any of the urticarial wheals on the body. The pulse was 110 and of poor volume. The blood pressure was 80/60 and the heart sounds were

distant. The abdomen was soft but not tender. The patient was wearing a pad over the vulva because of vaginal bleeding. Rectal examination was negative.

The patient attributed her fainting spell to an enema which was unexpectedly followed by her menses.

Aromatic spirits of ammonia were given by inhalation and the head was placed lower than the rest of the body.

After about five minutes the pallor of the skin disappeared and the pulse became fuller. The patient declared she no longer felt weak or dizzy but again complained of intense itching over her entire body. After a lapse of about three minutes the urticarial wheals began to reappear over her entire body. The blood pressure was again taken and it was 110/80 and the pulse 88 and full.

The urticaria and pruritus gradually disappeared after eight hours. The vaginal bleeding proved to be the menstrual period.

Lewis and Grant<sup>2</sup> describe the following changes in wheal formation:

- 1 Local dilatation of capillaries, venules, and arterioles by direct action
- 2 Widespread dilatation in neighboring arterioles by local reflex action
- 3 Increased permeability of vessel walls by direct action

Jarisch<sup>3</sup> considers wheals as circumscribed edema, mainly dilatation of lymph spaces and vessels of corium, and swelling of connective tissue bundles.

Uhlmann<sup>4</sup> states that on microscopic examination the wheals are located in the papillary layer and succeeding layers of the cuts.

It has been shown by Lewis and Grant,<sup>2</sup> and Pilcher<sup>5</sup> that an adequate circulation is necessary for wheal production.

The edema fluid is derived directly and wholly from the blood plasma, as shown by Ebbecke.<sup>6</sup>

In syncope there is a drop in blood pressure and the pulse is of poor volume.<sup>7</sup>

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## CERVICAL PLEXUS BLOCK

H. M. WERTHEIM, M D, F A C S, AND E. A. ROSENSTINE, M D, New York City

*(From the Division of Surgery Department of Anesthesia New York University College of Medicine and the Third Surgical Division Bellevue Hospital New York City)*

THE time is not long past when the application of regional analgesic methods and therapeutic nerve blocking was relegated to few surgeons and anesthesiologists. The present trend is one of increasing enthusiasm for these procedures. To those who have been especially interested in the advancement of the principles and the use of these methods, this attitude is gratifying. However, many useful regional analgesic procedures are employed relatively infrequently, even for patients who may present special indications for their use. Blocking of the nerves composing the cervical plexus is one procedure that is not generally utilized. The reason for this may be an unwarranted conception that the technic requires great skill for successful results. If there is justification for this attitude it must be an admission that anesthesiologists cannot develop the ability to project visual sensation to the advancing point of the needle, nor obtain special knowledge of the regional anatomy involved. With these requisites, true of all nerve block procedures, and the careful fulfillment of the general principles necessary for the successful accomplishment of any regional method, one can consistently obtain good analgesia on the anterior and lateral aspects of the neck.

Therapeutic nerve block, on the other hand, presents a special problem. The analgesic agents available for therapeutic block may be justly criticized and do present a serious handicap that will correct itself only when a substitute for alcohol is found.

We claim no originality for cervical plexus block. The first actual injection of drugs to produce analgesia was probably done by W. S. Halsted at Bellevue

Hospital, in 1884. Among the many experiments he performed with the then new anesthetic cocaine was described a demonstration of perfect anesthesia obtained by injecting the nerve trunks in the neck. It is interesting to note that these operations were performed in a tent on the hospital grounds. Halsted 'found it impossible to carry out antiseptic precautions in the general amphitheatre at Bellevue, where numerous anti-Lister surgeons dominated and predominated'. Credit for introducing cervical plexus block belongs to Kappis, of Germany, who first described the posterior approach. Heidenhain followed with a technic using the lateral route. Pauchet and his pupil, Labat, popularized the procedure in France and America, respectively. Many excellent articles on cervical plexus block have appeared in the literature within the last few years. However, some of these presentations have been inadequately elucidated. Several important points in anatomy and technic still need to be clarified.

Cervical plexus block is to be considered as the interruption of pain impulses to the anterior and lateral aspects of the neck through the deposition of an analgesic solution about the anterior primary divisions of the second, third, fourth, and occasionally the fifth cervical nerves. A successful analgesia will not necessitate a superficial field block of the cutaneous nerves. The promiscuous use of this latter method is not advocated but when the necessity for its application arises, one trained in analgesic methods must be able to perform the technic and appreciate its usefulness.

Realizing that the general anatomy of the somatic cervical nerves and their sur-

*Read at the Annual Meeting of the Medical Society of the State of New York  
New York City May 11 1938*

There is dilatation of visceral vessels and cerebral anemia<sup>8</sup>

The color of the skin, apart from effects due to pigmentation and variations in thickness of epidermis, is determined chiefly by its blood supply<sup>9</sup>

The pallor of the skin is due to the constriction of the peripheral vessels<sup>10</sup> or to the deflection of blood to the splanchnic areas<sup>11</sup>

According to Bray,<sup>12</sup> urticaria due to an emotional upset may be explained by a disturbance in vagosympathetic balance, causing an increased permeability of the blood vessels

In syncope with the above changes taking place, the interference with the blood supply to the skin may partly explain the mechanism of the interruption of wheal formation

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## THE GRAD FROM TIMBUCTOO\*

The medical texts are covered with dust,  
Neglected and musty they stand,  
And the compound 'scope is red with rust,  
And the journals mold, near at hand!

Time was when the favorite texts were new  
And the 'scope had its daily care,  
'Twas then that the Grad from Timbuctoo  
Left school—and put them there

"You'll be right here when I've time," he said,  
"And after my rounds are through!"  
Then he hurried off, at last, to bed  
And dreamt that his plans came true

But as he was dreaming, an urgent song  
Woke the Grad from Timbuctoo  
The work came thick, and the money fast,  
He had all that he wished to do

And always waiting, right close at hand  
While the dust and the rust grew more,  
Were texts and journals and microscope  
With the latest of medical lore.

Aye, faithful to Timbuctoo they stood  
Each in its given place—  
Just waiting the touch of a searching hand,  
And the smile of a willing face.

They wondered as waiting the long years through  
In the dust, without any care,  
Why that Grad from Timbuctoo  
Ever got them and put them there!

Then gradually, as the years slipped by,  
The Grad felt his prestige fall,  
And he realized with a sudden pang,  
That he hadn't "kept up" at all,

He looked askance at the rust and dust  
And the stack of journals high,  
And he knew in his heart he'd never catch up  
No matter how hard he'd try!

Are you like the Grad from Timbuctoo  
Who failed in its standards high?  
Will you, as the years go racing along,  
Let the chance to "keep up" slip by?

If so, you'll wonder, while sitting alone  
In the dear old office chair,  
Why other doctors are busy as heck  
And you are just sitting there!

\*William J Kerr, M D, of San Francisco, in his post prandial talk on postgraduate training, at the one hundredth semiannual meeting of the Southern California Medical Association, added to the entertainment of the dinner guests by giving these verses, penned by a member of his family, Dorothy Fisk Kerr

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And the smile of a willing face

They wondered as waiting the long years through  
In the dust, without any care,  
Why that Grad from Timbuctoo  
Ever got them and put them there!

Then gradually, as the years slipped by,  
The Grad felt his prestige fall,  
And he realized with a sudden pang,  
That he hadn't "kept up" at all,

He looked askance at the rust and dust  
And the stack of journals high,  
And he knew in his heart he'd never catch up  
No matter how hard he'd try!

Are you like the Grad from Timbuctoo  
Who failed in its standards high?  
Will you, as the years go racing along,  
Let the chance to "keep up" slip by?

If so, you'll wonder, while sitting alone  
In the dear old office chair,  
Why other doctors are busy as heck  
And you are just sitting there!

\*William J Kerr, M D, of San Francisco, in his post prandial talk on postgraduate training, at the one hundredth semiannual meeting of the Southern California Medical Association, added to the entertainment of the dinner guests by giving these verses, penned by a member of his family, Dorothy Fisk Kerr

## CERVICAL PLEXUS BLOCK

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THE time is not long past when the application of regional analgesic methods and therapeutic nerve blocking was relegated to few surgeons and anesthetists. The present trend is one of increasing enthusiasm for these procedures. To those who have been especially interested in the advancement of the principles and the use of these methods, this attitude is gratifying. However, many useful regional analgesic procedures are employed relatively infrequently even for patients who may present special indications for their use. Blocking of the nerves composing the cervical plexus is one procedure that is not generally utilized. The reason for this may be an unwarranted conception that the technic requires great skill for successful results. If there is justification for this attitude it must be an admission that anesthetists cannot develop the ability to project visual sensation to the advancing point of the needle, nor obtain special knowledge of the regional anatomy involved. With these requisites, true of all nerve block procedures, and the careful fulfillment of the general principles necessary for the successful accomplishment of any regional method, one can consistently obtain good analgesia on the anterior and lateral aspects of the neck.

Therapeutic nerve block, on the other hand, presents a special problem. The analgesic agents available for therapeutic block may be justly criticized and do present a serious handicap that will correct itself only when a substitute for alcohol is found.

We claim no originality for cervical plexus block. The first actual injection of drugs to produce analgesia was probably done by W. S. Halsted at Bellevue

Hospital, in 1884. Among the many experiments he performed with the then new anesthetic cocaine was described a demonstration of perfect anesthesia obtained by injecting the nerve trunks in the neck. It is interesting to note that these operations were performed in a tent on the hospital grounds. Halsted "found it impossible to carry out antiseptic precautions in the general amphitheatre at Bellevue, where numerous anti-Lister surgeons dominated and predominated." Credit for introducing cervical plexus block belongs to Kappis, of Germany, who first described the posterior approach. Heid enham followed with a technic using the lateral route. Pauchet and his pupil, Labat, popularized the procedure in France and America, respectively. Many excellent articles on cervical plexus block have appeared in the literature within the last few years. However, some of these presentations have been inadequately elucidated. Several important points in anatomy and technic still need to be clarified.

Cervical plexus block is to be considered as the interruption of pain impulses to the anterior and lateral aspects of the neck through the deposition of an analgesic solution about the anterior primary divisions of the second, third, fourth, and occasionally the fifth cervical nerves. A successful analgesia will not necessitate a superficial field block of the cutaneous nerves. The promiscuous use of this latter method is not advocated but when the necessity for its application arises, one trained in analgesic methods must be able to perform the technic and appreciate its usefulness.

Realizing that the general anatomy of the somatic cervical nerves and their sur-

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New York City, May 11, 1938*



rounding structures has been described quite clearly and accurately in the textbooks of anatomy, it is only necessary to present a summary of the pertinent regional features of the cervical structures which, we believe, are necessary for successful localization of the nerves

The cervical plexus is formed by the upper four cervical nerves. It is not necessary for purposes of analgesic block to interrupt the impulses of the first cervical nerve when operations are performed on the anterior aspect of the neck. However, therapeutic nerve block often demands an attempt to block this nerve when, for example, after blocking the second cervical nerve, occipital neuralgia is not relieved. All the cervical nerves (except the first) arise from the medulla spinalis and after a short distance pass through their respective intervertebral foramina. The first cervical nerve, called the suboccipital nerve, emerges between the occipital bone and the posterior arch of the atlas. The posterior sensory root of this nerve is, as a rule, much smaller than the anterior motor root and may often be entirely absent. In 16 cadavers dissected, 12 were found to have no posterior root of the first cervical nerve. The sensory roots of all other cervical nerves are at least three times larger than their associated motor roots. This anatomic arrangement is significant and points to the conclusion that mixed cervical nerves have comparatively a greater sensory than motor function. After the mixed nerves are formed by union of the anterior and posterior roots, they divide in anterior and posterior primary divisions. The exception is the first cervical nerve, which seldom has an anterior division. The posterior primary division of the first cervical nerve is composed almost entirely of motor filaments, but the posterior primary divisions of the remaining cervical nerves are mixed nerves. The latter pass posteriorly over the posterior border of the corresponding transverse process around the articular process and divide into medial and lateral branches. The medial branch as a rule gives a filament to

the articular disk and surrounding ligaments. The vertebral joints are supplied by a recurrent branch from the nerves before they divide. It will be noted, therefore, that because of this anatomic arrangement, blocking of the cervical nerves at the extremity of the transverse processes will not always include the posterior primary division, and so will not interrupt the impulses to the vertebral articulations.

The first cervical nerve (suboccipital nerve) passes under the vertebral artery in its relationship to the posterior arch of the atlas, and is held in place by a fibrous tunnel. The second, third, and fourth cervical nerves pass laterally from the intervertebral foramina, crossing under the vertebral artery and vein, fitting into the convex surfaces of the corresponding process. Each nerve is held firmly in place by a fibrous tunnel that is attached to the transverse process, and at various intervals projections are sent to the intertransverse muscles. As the nerve approaches the lateral extremity of the transverse process, it flattens and approaches closer to the posterior than the anterior tubercle. The anterior tubercles of the transverse processes are located more cephalad and medial, than are the posterior tubercles. The tendinous structures attached to the anterior tubercles of the second, third, and fourth cervical vertebrae are the longus coli, the longus capitis, and the scalenus anterior muscles. The tendons attached to the posterior tubercles are the scalenus medius, the splenius cervicis, and the longissimus cervicis. These groups of tendons and their muscles below form an anatomic tunnel that encloses the cervical plexus.

The surface anatomy and deep bony landmarks assume an important role in the determination of the proper site for injection of analgesic agents, and this phase will be described in detail. The upper third of the sternocleidomastoid muscle covers the cervical plexus, thereby placing the nerve roots in the posterior triangle of the neck. A line drawn perpendicularly along the neck from the apex of the condyle of the mandible will

as a rule pass between the anterior and posterior tubercles of the transverse processes of the second, third, fourth, and fifth cervical vertebrae. The carotid tubercle or anterior tubercle of the sixth cervical vertebra should be about 1 cm anterior to this line. The tubercle of the first cervical vertebra is about  $2\frac{1}{2}$  cm caudad on this line. The remaining posterior tubercles assume bizarre shapes and are at varying distances from each other. A perpendicular dropped posteriorly through the angle of the mandible as a rule crosses the posterior tubercle of the second cervical vertebra just cephalad to its extremity. The average distance from the second to the fifth posterior tubercles is 5 cm. The second is separated from the third by 2 cm, the third from the fourth by  $1\frac{1}{2}$  cm, and the fourth from the fifth by 1 cm. The internal carotid artery and internal jugular vein lie under cover of the upper end of the sternocleidomastoid muscle, more anterior and medially than the roots of the cervical nerve. Intermingled with the nerves are branches of the anterior vertebral veins, which accompany the ascending cervical artery.

From a careful survey of the relationship between the anterior primary divisions of the upper cervical nerves and the deep bony landmark, it would seem logical and safe to inject the nerves by primary contact with the posterior tubercles of the second, third, fourth, and fifth cervical vertebrae, through the lateral approach. Approaching the cervical nerves from the posterior aspect of the neck is neither advocated nor used here. It is only when operations are to be performed that involve the lower part of the neck or when a possibility of operating in the substernal space exists that the fifth cervical nerve is blocked. In several cases where this nerve had not been blocked, analgesia was incomplete in the substernal region.

The analgesic procedure is performed with the patient on the operating table. The head of the table is slightly raised and an air cushion about 3 inches high placed under the external occipital



FIG 1 The landmarks for cervical plexus block.

protuberance. The head is directed forward with the chin in normal position, that is, approximately at a right angle with the spine, until the landmarks have been determined. The head is directed slightly to the side opposite that of injection without moving the cervical spine. The apex of the condyle of the mandible is located. A line is drawn perpendicularly from this point, passing posterior to the ramus of the mandible, and continuing along the side of the neck. The angle of the mandible is then located and a perpendicular line is dropped through it from the triturating surfaces of the teeth. If the patient is edentulous, the gingival margins must be separated sufficiently to accommodate for such loss before this landmark is determined. Where the second perpendicular crosses the first, usually at 5 cm from the condyle, that point corresponds to the posterior tubercle of the second cervical vertebra. Markings are made on the first perpendicular, going caudad from the crosspoint at the 2 cm.,  $3\frac{1}{2}$  cm., and 4 cm., these points corresponding to the third, fourth, and fifth posterior tubercles (Fig 1). All analgesic solutions should be freshly prepared by the anesthetist immediately before use. Ampoules containing 5 cc. of a 20 per cent procaine solution may be diluted with normal saline to the easily computed concentration as ordered. After proper precautions of sterilization, wheals are raised at the located sites. A Labat needle, size 50 by 7 upon which has been threaded a small rubber recorder for about

a distance of 2 cm, is directed perpendicularly to the sagittal plane, at the designated points of injection. The block is started at the fourth cervical nerve. The thumb of the free hand palpates the transverse processes while displacing the carotid artery and internal jugular vein medially. After contact is made with the bony structure, the needle is directed posteriorly so that it may pass off the posterior tubercle. This point of technic is important for the determination of the exact location of the point of the needle. The recorder is then withdrawn 1 cm on the needle and the direction of the shaft of the needle changed to a slightly anterior and cephalad direction, passing into the concavity of the corresponding transverse process for a distance of 1 cm. During this maneuver, patients may very often complain of paresthesias and react with a jerk of the head. The anesthetist should not hold the needle too securely because forcibly changing the direction of the head may break or displace the needle and injure the adjacent vessels. When one is satisfied that the point of the needle is in the proper position, before injecting the drug the aspiration test is conducted and the syringe detached from the needle. This is advised to determine whether the needle may be in the subarachnoid space. The syringe is again attached, and 5 cc of the solution are deposited with the needle in its original position. When this injection is completed, the needle still attached to the syringe is gradually withdrawn. During the withdrawal the remaining 1 cc of solution is injected so that the syringe is completely discharged as the point of the needle passes over the posterior tubercle.

No attempt is made to block the superficial branches of the cervical plexus, nor do we believe in a supraclavicular infiltration of procaine. Such injection merely complicates the procedure of cervical plexus block, and if the technic described is followed carefully there should be no need for this supportive wall of analgesia. The cervical plexus may be blocked bilaterally without fear of respiratory or other disturbances. A bi-

lateral block is advocated for any operative procedures that extend to within one-half inch of the midline of the neck.

An essential part of any narcosis is the preanesthetic preparation of the patient. In regional nerve blocking, it is a fallacy to consider the anesthesia simply as the technic performed in the operating room immediately before surgery is undertaken. The preparation of the patient should be gone about with the same careful and individual consideration given to any part of the procedure. Preanesthetic preparation is designed to protect the patient from mental and physical discomfort, for prophylaxis against untoward reactions from anesthesia, and to permit more convenient and less dangerous narcosis with a minimal amount of anesthetic drugs. It is impossible to suggest routine drugs or doses for premedication that may be expected to give uniform results. At no time are sedative and hypnotic drugs used therapeutically where rigid individualization is more important.

The barbiturates are of real advantage in connection with regional anesthesia. They serve to allay apprehension and are hypnotic. Moreover, because of their antispasmodic action, their use serves prophylactically to protect against the toxic reactions from any of the anesthetic agents employed. Rapid but short acting members of the barbiturate group given in small doses by mouth at a time before nerve block, depending on the barbiturates chosen, serve the purpose well.

The barbiturates are hypnotic but not analgesic. Analgesics are definitely of value during regional anesthesia. They minimize the slight pain attending injection of drugs and serve the same purpose for postoperative pain. The opiates are the most satisfactory analgesics. Morphine is generally conceded the most efficient. It is preferably given subcutaneously in combination with scopolamine (ratio—25:1) one and one-half to two hours before nerve block is begun. Scopolamine is useful in preventing serious respiratory depression from morphine.

and has the added advantage of producing a most desirable cerebral depression. It is seldom necessary to exceed a dose of  $\frac{1}{4}$  gr morphine and  $\frac{1}{160}$  gr scopolamine for medication prior to regional nerve block unless the patient is experiencing severe pain before operation.

Practically any operation proposed that involves the anterior or lateral aspects of the neck may be painlessly and conveniently performed after blocking the cervical plexus. Extirpation of tumors, dissections of the neck, removal of thyroglossal cysts, repair of aneurysms, laryngectomies, and thyroidectomies are included among operative manipulations that have been satisfactorily completed during cervical plexus nerve block analgesia. A definite indication is often presented by thyrotoxic patients with severe cardiac involvement who will require an experienced anesthetist with exceptional ability when inhalation anesthesia is employed. The most essential indication for cervical plexus block is too rarely given proper consideration. It offers a relatively safe procedure whenever modern inhalation anesthesia is not available.

It is difficult and unfair to attempt to establish comparisons between inhalation narcosis and regional nerve block. One should hesitate to draw conclusions from superficial observations or even from reported operative and postopera-

tive results. The two methods are diametrically opposed in principle. Inhalation narcosis includes loss of consciousness, while regional anesthesia does not. Inhalation anesthesia results from presenting to the general circulation a drug which, carried to the central nervous system, produces anesthesia of the entire body. Regional anesthesia offers a drug to the nerves supplying the operative area destined to affect a limited portion of the body. More important still in comparing methods are the conditions under which each is administered, the ability of the anesthetist, and the requirements of individual surgeons. If it were possible to apply each method with the highest and an equal degree of expertness, to have conditions that did not vary, and to have operations performed by surgeons with identical dexterity, some comprehensive evaluation of methods might be attempted. With the present state of anesthesia, both inhalation and regional, it scarcely behooves one to become too enthusiastic in praise or condemnation of any particular method. It is sufficient to review the possibilities of methods and insist that the application of each should be rigidly individualized for the patient. The results obtained with any anesthetic procedure will depend largely upon the judgment, training, and experience of the anesthetist.

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## INSTITUTE ON DIETETICS

The Council Committee on Public Health and Education of the Medical Society of the State of New York announces that it will conduct a four-day Institute on Dietetics in the fall at Syracuse, New York. The State Department of Health, the College of Medicine and the College of Home Economics of Syracuse University and the New York Dietetic Association are cooperating with the Committee in offering this course.

The following subjects will be considered during the Institute: General Consideration of Diet, Diet in Pregnancy and Lactation, Diet in Infancy and Childhood, Diet in Deficiency Diseases, Diet in Cardiac Diseases and Arthritis, Diet in Metabolism I (Diabetes), Diet in Metabolism II (Obesity, Undernutrition), Diet in Diseases of the Gastrointestinal Tract, Diet in

Renal Diseases, Diet in Relation to Allergy, Diet in Relation to Surgery and Food Fads and Fallacies.

It is planned to take up three subjects on each day at weekly intervals with a lecture by a physician on each topic and a practical demonstration on the same subject by an experienced dietitian. A registration fee of \$10 will be charged for this course.

Applications to register in the course should be sent to Doctor Thomas P. Farmer, Chairman, Council Committee on Public Health and Education, Medical Society of the State of New York, 200 Sedgwick Drive, Syracuse, New York. As it will be necessary to limit the number registered for this course, it is advisable for all who wish to enter the course to apply at once.

# THE VICARIOUS FUNCTION OF THE LIVER IN CLINICAL AND EXPERIMENTAL AZOTEMIA

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IN RENAL diseases one frequently observes periods when the excretion of urine in general and of nitrogen substances in particular drops very considerably, and yet the patients do not develop symptoms of uremia. Even a complete anuria may last for a couple of days without corresponding severe symptoms. This phenomenon is, up to the present, rather difficult to explain, notwithstanding all recent theories about the real causes of true uremia. However, it would be easier to understand if it could be demonstrated that the system is able to eliminate the excess of protein derivatives in other ways, aside from the kidneys. And, indeed, such supplementary ways of excretion have been known for a long time. They are the respiratory organs, the skin, and several secretory and excretory glands. Leube<sup>10</sup> found about 2 gr. of residual nitrogen in the sweat of azotemic patients. Strauss<sup>15</sup> noted a large amount of urea in the vomitus of these patients. Soetbeer<sup>13</sup> observed in animals with removed kidneys a steady flow of gastric juice, containing normal quantities of chlorine and hydrochloric acid, but a twofold amount of residual nitrogen and eight times as much ammonia as in physiologic cases. In the saliva of the animals the quantity of residual nitrogen was from five to ten times as great as before the removal of the kidneys, but never higher than in the blood plasma. Also the amount of residual nitrogen in various tissues was considerably increased, as in the liver by 144 per cent and in the brain by from 35 to 40 per cent.

The liver, as the alleged producer of urea and the chief organ of nitrogenous metabolism, deserves special attention in this issue. Hammarsten<sup>7</sup> regards urea as a constant physiologic compound of

human, bovine, and canine bile. In the bile of some sharks, urea is one of the principal substances contained. According to Marshall and Davies,<sup>11</sup> the amount of urea in human bile is about 0.030 per cent. In a postmortem examination of the bile of uremic cases Hammarsten<sup>7</sup> found very increased quantities of urea. Finally, according to Barbera, "There exists a strict correlation between the amount of urea produced by the liver, and the quantity of secreted bile, namely, if the former increases, the latter does likewise."

These observations inclined me to investigate, *in vivo*, the concentration of nitrogen substances in the bile of azotemic patients, and, if possible, to determine the absolute daily amount of these substances excreted in this way. Comparing the data obtained with the concentration of nitrogen compounds and their daily amount in the urine, I aimed to find out if the secretion of the liver really plays a significant part in the elimination of nitrogen substances.

My material consisted of cases with normal kidneys without azotemia, and of several patients suffering from chronic or subacute renal diseases with more or less severe azotemia. Many of them showed distinct uremic or suburemic symptoms.

## Methods

During the day prior to the examination, azotemic patients were kept on a nephritic diet low in proteins. Patients without azotemia had their usual mixed diet. The next morning, with the patient fasting, I introduced the duodenal tube. I collected the duodenal juice (bile A) during two hours. Then I poured through the tube 40 cc. of MgSO<sub>4</sub>, 25 per cent, and obtained the whole

amount of dark bile (bile B) Aiming to get the full quantity of duodenal contents, I always used a syringe and exerted a steady, although very slight, aspiration. Each of the portions A and B was measured and, after deproteinisation by trichloroacetic acid, used for the determination of urea and total (nonprotein) nitrogen.

On the same morning the concentration of urea and of total nitrogen in the blood plasma was ascertained. Also the concentration and the daily amount of these substances in the urine and in the feces were determined. For the determination of the urea I used the hypobromide method of Ambard. This procedure enables one to measure the whole amount of urea, ammoniac salts, and carbamides. In the following statements I call all these substances, shortly, "urea". The total nitrogen was determined by means of Kjeldahl's procedure.

The twenty four hour amount of nitrogen substances in the bile I estimated approximately, multiplying by 12 the quantity of urea and total nitrogen found in the two hour portion of bile A.

## Results

It seems to me undesirable to take up your time with detailed quotations of the data obtained. I rather prefer to cite some examples of the results obtained in a few normal and azotemic cases (Tables 1, 2, and 3).

The following observations, made during the investigations on humans, deserve special attention, namely:

1 In all normal cases, i.e., in cases without azotemia, I found in the duodenal contents distinct traces of urea and other nonprotein nitrogen substances. However, the concentration of these substances is always smaller than in the blood plasma. Also, the total daily amount of urea excreted in the bile is small (on the average about 0.48 gr). The same is true of other nitrogen substances, since the total daily amount of nonprotein nitrogen is less than 1 gr (on the average about 0.09 gr).

2 The bile B often, but not always, contains more urea and nonprotein nitrogen than the bile A. Pertinent investigations of mine on dogs have shown that the concentration of various crystalloids

TABLE 1.—L. Z., ♀ 40 YEARS. ENDOMETRITIS CHRONICA. URINE DAILY AMOUNT—800 Cc. SPECIFIC GRAVITY—1.022 REACTION—ACID NO ALBUMEN NO RENAL ELEMENTS

	Urea		Total Nonprotein Nitrogen	
	Percentage Concentration	Absolute Daily Amount	Percentage Concentration	Absolute Daily Amount
Duodenal cont. A	0.026	0.41 gr (approx.)	0.035	0.56 gr (approx.)
Duodenal cont. B	0.038		0.011	
Blood plasma	0.028		0.022	
Urine	1.191	9.53 gr	0.690	4.72 gr
Feces	0	0	1.161	1.37 gr

TABLE 2.—G. H., ♂ 34 YEARS. NEPHRITIS DIFFUSA CHRONICA. URINE DAILY AMOUNT—420 Cc. SPECIFIC GRAVITY—1.008 REACTION—ACID ALBUMEN 1 1/2% NUMEROUS CYLINDERS, ETC.

	Urea		Total Nonprotein Nitrogen	
	Percentage Concentration	Absolute Daily Amount	Percentage Concentration	Absolute Daily Amount
Duodenal cont. A	0.137	2.37 gr (approx.)	0.199	3.40 gr (approx.)
Duodenal cont. B	0.112		0.160	
Blood plasma	0.061		0.059	
Urine	1.025	4.30 gr	0.592	2.48 gr
Feces	0.076	0.113 gr	3.51	5.27 gr

TABLE 3.—K. W., ♂ 56 YEARS. NEPHRITIS INTERSTITIALIS CHRONICA MYODEGENERATIO CORDIS. URINE DAILY AMOUNT—1,500 Cc. SPECIFIC GRAVITY—1.010 REACTION—ACID DISTINCT TRACES OF ALBUMEN SINGLE RENAL ELEMENTS

	Urea		Total Nonprotein Nitrogen	
	Percentage Concentration	Absolute Daily Amount	Percentage Concentration	Absolute Daily Amount
Duodenal cont. A	0.166	3.89 gr (approx.)	0.196	4.59 gr (approx.)
Duodenal cont. B	0.204		0.239	
Blood plasma	0.089		0.084	
Urine	0.918	13.27 gr	0.604	7.66 gr
Feces	0.216	0.16 gr	3.088	2.29 gr

as, for instance, chlorides, bicarbonates, urea, etc., in the gallbladder bile, depends on how long the bile stays in the gallbladder

3 In the feces of nonazotemic persons one usually finds no urea, or only slight traces of it. The total daily amount of nonprotein nitrogen excreted with the feces reaches sometimes 2 gr., of which from 0.8 to 1.0 gr. are delivered by the gastrointestinal secretions

4 In azotemic cases the concentration of urea and of nonprotein nitrogen in the bile is always higher than in the blood plasma. Sometimes it is two to three times as high, or even more. The total daily amounts of these substances excreted into the duodenum reach sometimes 4 to 5, or even 6 gr. In several cases, the daily quantity of this "enterotropic" nitrogen is not much less than the amount of "urotropic" nitrogen, i.e., of the nonprotein nitrogen substances excreted by the kidneys. In some cases, the enterotropic nitrogen may be equal to, or even superior to the urotropic

5 In very severe azotemia exceeding 200 mg. per cent of urea or of nonprotein nitrogen in the blood plasma, the difference between their concentration in the duodenal contents and in the plasma is less marked although still discernible

The cited observations were obviously in favor of the primary hypothesis—that in azotemia the liver secretion plays an important part in the elimination of the toxic nonprotein nitrogen substances. However, before this hypothesis could be accepted, two important issues had to be decided. In the first place, the duodenal contents are by no means pure bile, but consist of bile and gastric, duodenal, and pancreatic juices. Hence the question, is it really the bile that contains the excess of urea and total nitrogen, or is it rather the gastric or pancreatic or intestinal juice? In the second place, the applied estimation of the total daily enterotropic nitrogen is by no means exact. Therefore, the question is justified if the whole daily amount of urea and nonprotein nitrogen is really high, as indicated above

To answer these two questions, I chose two ways, namely a clinical and an experimental one

A The clinical series of investigations pointed to the determination of nonprotein nitrogen substances in the saliva and gastric juice obtained in nonazotemic as well as in azotemic cases

The investigations were performed, as follows. With the patient fasting, a Rehfuß gastric tube was introduced into the stomach and the stomach contents steadily aspirated for two or three hours by means of a syringe. During the same period all the saliva flowing from the patient's mouth was collected. The quantities of saliva and gastric juice were measured and their contents of urea and nonprotein nitrogen quantitatively determined. The twenty-four-hour amounts of these substances were calculated in the same way as in the duodenal contents, of course, the urine and feces were also examined. The results of these investigations were very definite

1 The concentration of urea and other nonprotein nitrogen substances in the saliva and in the gastric juice is in nonazotemic as well as in azotemic cases smaller than in the blood plasma

2 The total daily amount of nonprotein nitrogen substances excreted by the salivary glands and the gastric mucosa does not play a considerable part in the elimination of toxic protein derivatives

B I pass now to the experimental part of the work. I begin with the investigations concerning nonprotein substances in the intestinal juice.

To this end I produced in dogs Thiry-Vella fistulas. I omit here the detailed description of the operative technic used and restrain myself to the demonstration of the following drawing, which shows schematically the procedure for obtaining the intestinal juice (Fig. 1)

Six or seven months after the creation of the fistulas, when the wounds healed completely and the dogs were in perfect health, I determined the concentration of urea and of the nonprotein nitrogen in

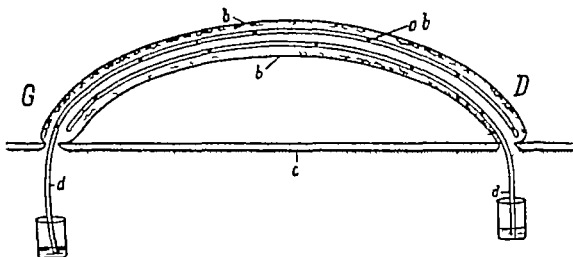


FIG 1 b—the isolated loop of the small intestine.  
 c—the skin of the abdomen  
 d—2 catheters, introduced into the isolated loop each catheter has a diameter of 3.5 mm and is provided with several holes—o b  
 G—the upper aperture of the fistula  
 D—the lower aperture of the fistula

the juice excreted by the isolated loop. The data obtained I compared with the concentration of these substances in the plasma of blood samples (obtained from a peripheral vein or from the right ventricle of the heart) and in the urine excreted at the same time. After several repeated investigations, with the dogs kept on various diets, I injected subcutaneously 5 to 8 cc of a solution of uranium nitrate, 1½ per cent. The dogs developed a severe acute uremia and died at the end of six or seven days. Beginning from the first day after the intoxication up to the last day, the intestinal juice was collected every day from two to three hours and examined. Parallel investigations were performed with the blood plasma. During the first two to four days before the complete anuria the urine was also examined.

These experiments have shown that in acute experimental uremia the concentration of urea and total nonprotein nitrogen in the intestinal juice increases very rapidly and considerably parallel to the increase of these substances in the blood plasma. The total amount of nonprotein nitrogen compounds excreted by the intestines is so considerable that it plays a certain part in the elimination of these substances in azotemia. However, their concentration in the intestinal juice remains steadily below that of the blood plasma. It is, therefore, obvious that

one deals here with a plain diffusion and not with an active secretion of these substances by the intestinal mucosa.

I pass now to experimental investigations concerning the proper hepatic bile. Their reliable performance required, first of all, the installation of a bile fistula which would correspond to the following requirements: (1) The introduction of a catheter into the fistula should enable me to obtain the whole bile secreted by the liver during a certain time, (2) after removal of the catheter, the whole bile should flow into the duodenum, because otherwise the general state of the animal would ultimately be affected.

I cannot go into detail here about the difficulties that I encountered while obtaining adequate fistulas. I also cannot describe the particulars of the method finally used. So I only mention here that, after a series of failures, I succeeded in obtaining such fistulas, which enabled me to introduce a catheter up to the level of the sphincter Oddi or even into the duodenum (Fig 2, see page 1320).

As you see on this schematic design, the gallbladder is pulled far to the left hypochondrium, where its bottom is fixed. In this way one obtains a sharp angle between the hepatic and the cystic ducts, while the angle between the cystic and the common bile ducts is correspondingly dull. During the operation I also pointed to place the gallbladder and its



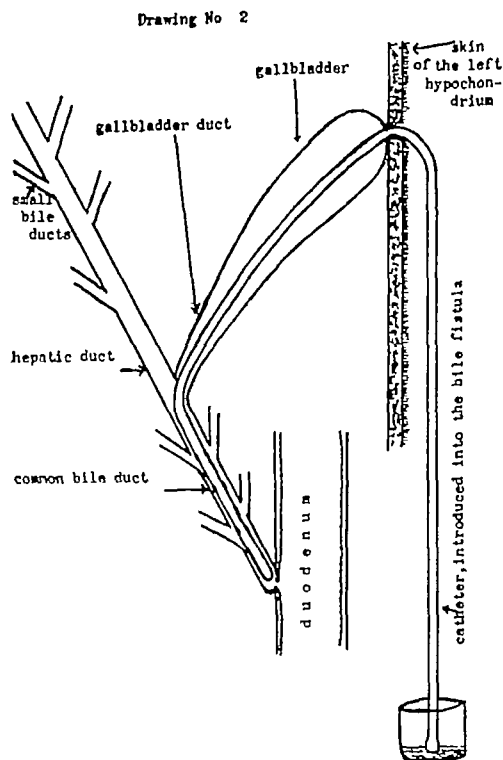


FIG 2

duct into one plane with the common duct. The design shows distinctly that in the absence of a catheter the hepatic bile will flow almost exclusively into the duodenum. On the contrary, as soon as a catheter is introduced, the whole bile will flow outwards, through the catheter.

After the complete healing of the fistulas, the dogs were kept several months on various diets. The urea and total nitrogen contents of their bile were frequently determined and compared with the concentration of these substances in the blood plasma and in the urine. At the end of the experiences, a severe azotemia was produced in three different ways. In one group of dogs I removed at once both kidneys, in another group I performed a complete ligation of both ureters, and in a third group I injected subcutaneously 5 to 8 cc of a  $1\frac{1}{2}$  per cent solution of uranium nitrate.

The dogs survived the interventions by at least four, at the most by eleven

days. During this period their bile was extracted several times and its concentration of nonprotein substances determined. As the whole amount of bile secreted during the extraction could be measured, it was easy to calculate the absolute quantity of these substances excreted daily by the liver. Of course, the usual parallel examinations of the blood plasma were also executed, as well as the examination of the urine, if any were excreted.

The result of these experiments is shown in Table 4, which illustrates the data obtained in one dog from each of the three groups.

The pertinent experiments demonstrated the following important facts:

1. In a nonazotemic state the bile always contains urea and other nonprotein nitrogen substances. Their concentration is often higher than in the blood plasma. This is due to the fact that the bile salts, etc., are nitrogenous compounds. However, the absolute daily amount of nonprotein nitrogen excreted with the bile is rather inconsiderable compared with its quantity in the urine.

2. In azotemia the concentration of urea and other nonprotein nitrogenous substances in the bile increases very rapidly and considerably and in a short time reaches a level *by far higher* than in the blood plasma. The whole amount of the nonprotein nitrogen substance excreted in azotemia with the bile is very considerable and without any doubt plays an important part in their elimination from the system.

3. In the final, premortal period of the azotemia the concentration of the nonprotein nitrogen substances increases more rapidly in the blood plasma than in the bile. Therefore, the difference between them diminishes distinctly.

## Conclusions

Basing my opinion upon the described investigations in human and experimental azotemia, I affirm the following:

1. In chronic, as well as in acute and



# Society News

## Change of Dues Year

ATTENTION of the component County Medical Societies and the members of the Medical Society of the State of New York is respectfully called to the amendment of the Bylaws of the State Society which was adopted on April 25, 1939, to make the dues year coincide with the fiscal year of the Society

Chapter 1, Section 2, of the Bylaws now reads

"Sec 2 The term "good standing" is hereby defined as

"(a) A member is in good standing when his dues to his County Society and the assessment of the State Society have been paid when they are due and payable *The dues year shall coincide with the fiscal year, July 1 to June 30 of the succeeding year*

"(b) A member whose dues and assessments are unpaid after December 31 of any current year is not in good standing He is in arrears for dues He has lost his right to malpractice defense by Counsel of the Medical Society of the State of New York for any acts upon which suit may be predicated during the period of his arrearage. Thus last is not recoverable, even when he becomes reinstated Immediately upon payment of dues during the current year, his right to malpractice defense by Counsel of the Medical Society of the State of New York shall be restored from that date.

"(c) A member whose dues and assessments are unpaid after June 30 of any current year shall automatically be dropped from the rolls of membership of both County and State Societies, without notice to such member by his County

Medical Society or the Medical Society of the State of New York or without further action on the part of either County or State Society, and upon such date, he shall automatically cease to be a member of both County and State Societies

"(d) The change of the dues year shall first become operative on July 1, 1940, provided, however, that County dues and State assessment shall be paid at half the annual rate for the six months' period, January 1, 1940, to June 30, 1940, the full regular annual rate to be paid thereafter, as hereinafter provided

"(e) Dues and State assessment of a member elected or reinstated after May 1 shall be credited to the ensuing fiscal year, all rights and privileges of membership, however, dating from the time of election "

For some time the fiscal year of the State Society has been, under the Bylaws, from July 1 to June 30 of the ensuing year On the other hand, the calendar year has been used for the collection of the State Society assessment

As will be seen from the phraseology of the Bylaws as amended, this change will go into effect as of July 1, 1940 However, it is also arranged that a preliminary transition period of six months from January 1, 1940, to June 30, 1940, shall precede the change During this six-month period the County Societies will collect only one-half of the yearly assessment for the State Society

TERRY M TOWNSEND, *President*  
GEORGE W KOSMAK, *Treasurer*  
PETER IRVING, *Secretary*

## To All County Medical Societies. Communication 30

THE Director of Workmen's Compensation has been requested by the Department of Labor to instruct all physicians registered under the Workmen's Compensation Law, who appear before a referee of the Department of Labor to give testimony, to request the referee, at the termination of the hearing, to make an award to them for their testimony Through inadvertence referees occasionally fail to make an award in which event the physician is required to report the matter to the County Society or to the Department, causing additional work and often necessitating a review of the record All this can be avoided if physicians who appear, in order to give testimony before the Department of Labor, will uniformly request the referee to make an award in accordance with their rating In some instances physicians are requested to appear on behalf of an insurance carrier or employer and arrangements are made in advance for payment In this event it is not necessary for the physician to request the referee to make an award

Attention is called to Rule No 21 which gives the referee the right to refuse an award to a physician who has treated a case and has failed to file the proper reports in accordance with the law necessitating his being summoned to the Department to give testimony

Physicians are urged to be certain that their C-104 and C-4 forms are filed promptly and in sufficient detail to enable the referee to decide the issue It is important to notarize the C-4 forms which can then be used as prima facie evidence Progress reports in protracted cases should be sent every three to four weeks and request for authorization to continue treatment should be made in all cases receiving physical therapy as the major treatment before the total for such treatment reaches \$25 A copy of such request for continued treatment should be kept in the event that the carrier later disputes the physician's bill on the ground that he failed to secure authorization

June 15, 1939 DAVID J KALISKI, M D, *Director*

# Public Health Notes

J ROSSLYN EARP, L R.C P, Dr P H  
New York State Department of Health

## The Smallpox Outbreaks

THE most difficult people to talk to in our department in recent weeks have been the director of the division of communicable diseases and the assistant commissioner to whom he is responsible. They admit you courteously enough into their offices and wave you to a chair. Then you notice that they are glued to the telephone and there they sit writing notes on a pad comparing lists and telegrams and uttering cryptic questions to some distant district officer. This is all due to smallpox of which there have been three distinct outbreaks in upstate New York since the beginning of March. Why all the bother? asked one department member after a staff meeting largely devoted to this subject 'when so little excitement is caused by a contemporaneous outbreak of 600 cases of septic sore throat with 4 deaths?' The difference is not due merely to the respect for smallpox which is inspired by our knowledge of its feats in other times and places. There is an important difference in our administrative control of the two situations. In the one case a cow with mastitis is found (only two hours after the outbreak is detected) and from that moment we know that the outbreak can be controlled. But smallpox as Shakespeare might have said, is crecive in its faculty. It flies like sparks in a high wind only farther and invisibly. Between May 14 and May 29 the Onondaga penitentiary set free 194 of its inmates all of whom had been exposed to smallpox. One of these men was traced to an Atlantic liner via Ellis Island. Others have been found despite false addresses but at the time of writing (June 14) less than half of them are under observation. Little wonder that our epidemiologists have not much time for gossip! Nevertheless they have been good enough to share with your reporter some of the lessons they have learned from this hectic experience.

Every one of these three outbreaks has come from a missed case of smallpox. This is not so disgraceful as it sounds. On each occasion the smallpox appeared like a bolt from the blue in a community where no smallpox had been seen for

a considerable time. Almost certainly the infection had been brought in in each instance from outside the borders of our state. In two cases the lesions were believed to be those of chickenpox in one, those of syphilis. The diagnosis of mild smallpox is not easy. Cases have occurred in these outbreaks wherein the distribution of lesions has been quite atypical and there have been plenty of cases in which no diagnosis could be made by the type of lesion. In some cases even the prodromal symptoms were so slight and transitory as to be easily overlooked. It is clear that in any case of 'chickenpox' in which there can be a possibility of doubt as to the diagnosis a second opinion always should be sought. For the benefit of the younger members of our profession the department photographer has made a number of color photographs of the skin lesions in the recent outbreaks. It is to be hoped that they will be found useful throughout the state.

Preventive vaccination has been practiced in the townships most closely affected, but in several cases the contacts have been vaccinated too late to prevent the development of this disease. With so many unknown contacts at large the department recommends to the whole profession that they urge vaccination upon all their susceptible patients. The commercial lymph has been found to be satisfactory and to give close to 100 per cent takes whenever it has been kept faithfully at freezing temperature. Since a few doctors are still to be found using the old method of scarification which I was taught at the English Cambridge in 1913 it is perhaps worth mentioning that this method is no longer approved. The multiple pressure method is described in Reprint No 1137 from the Public Health Reports,<sup>1</sup> a publication that will be useful to most of us in these days when smallpox is so seldom encountered.

<sup>1</sup>Leake, J P: Questions and Answers on Smallpox and Vaccination, Reprint No. 1137 from the Public Health Reports, U. S. Government Printing Office Washington 1937 price five cents.

## PRICE IS FORTIFIED ' TOO

The value of 'fortifying' foods with vitamins and minerals is questioned by Dr W H. Sebrell Surgeon of the United States Public Health Service in a statement prepared for the American Institute of Nutrition, meeting in Toronto.

It seems ridiculous to take a natural food stuff in which the vitamins and minerals have been placed by nature, submit this foodstuff to

a refining process that removes them and then add them back to the refined product at an increased cost, Dr Sebrell declares. He suggests that it would be better to follow the cheaper, more sensible and nutritionally more desirable procedure of simply using the unrefined or at the most slightly refined natural food.

# Medical News

## County News

### Albany County

**T**HE Medical Society, County of Albany, at its Scientific Session on May 24, heard an address by Hugh H. Young, M.D., F.A.C.S., Professor of Urology, Johns Hopkins Medical School and Urologist to Johns Hopkins Hospital, on "Genital Abnormalities, Hermaphroditism, and Related Adrenal Diseases."

A symposium on diseases of children was held at the Albany Hospital on May 25, sponsored by the American Academy of Pediatrics, State Department of Health and the Department of Pediatrics, Albany Medical College.

Among the speakers were Drs. Arthur K. Knudsen, Orpheus Barlow, Elizabeth Gardiner, Edward S. Goodwin, Hugh F. Leahy, William Siegal, Reuben J. Erickson, Otto A. Faust, Edward S. Godfrey, State Health Commissioner, Sydney Cunningham, Dean of Albany Medical College, Augustus B. Wadsworth, Byron W. Clark, Frank van der Bogart, Henry L. K. Shaw, Harold E. Himwich, Stevens J. Martin, and Gilbert R. Hubert.

### Bronx County

The Bronx County Medical Society on May 25 listened to a paper on "Chronic Arthritis," by Dr. Ralph H. Boots, with discussion by Drs. Benjamin Archer, Samuel Boorstein, and Abraham Pemsler.

The Wagner Health Bill was the chief topic at the annual meeting of the Bronx County Medical Society on June 21, with addresses by Haven Emerson, M.D., and Ernst Boas, M.D., and discussion from the floor. The following officers were elected for the ensuing year:

President, Dr. George E. Milani, 1st Vice-President, Dr. Joseph Golomb, 2nd Vice-President, Dr. Abner Stern, Secretary, Dr. Henry Friedland, Treasurer, Dr. Jacob A. Keller, Censors, Dr. Morris Cohen, Dr. Frank La Gattuta, Delegates (for 2 years), Dr. Edward R. Cunniffe, Dr. J. Louis Amster, Dr. Emil Koffler, Dr. Moses H. Krakow, (for 1 year), Dr. Louis A. Friedman, Alternates (for 2 years), Dr. John B. Schwedel, Dr. Vincent S. Hayward, Dr. Renato J. Azzari, Dr. Fredrick W. Williams, (for 1 year), Dr. Moses L. Furman.

### Broome County

The motion picture "Syphilis" from the American Medical Association was shown on May 22 at a joint meeting of the Broome County Medical Society, Binghamton Academy of Medicine, and Binghamton Psychiatric Society, at the Assembly Hall of the Binghamton State Hospital.

Dr. Frederick Wallace Putnam, one of the founders of the Medical Society of the State of New York and a leading Binghamton physician for nearly sixty years, died at his home there on May 2.

The eighty-two-year-old veteran of medicine had retired from practice only six months ago because of ill health.

Dr. Putnam's career there began in 1880 and included active participation in numerous civic and fraternal enterprises.

As a founder of the state medical society, he served as vice-president in 1894 and as president of the Broome County Medical Society in 1888. Appropriate resolutions were adopted by the county society.

Dr. Edward F. Day, sixty-seven, one of Binghamton's best known general practitioners of medicine for the last forty years, died at his home, following a long illness, on May 18.

### Cayuga County

One of the exhibits attracting considerable attention in the New York State Building at the New York World's Fair is one representing the Cayuga County Medical Society. It is located opposite the entrance to the Finger Lakes section.

The exhibit was arranged by Dr. Cornelius F. McCarthy, of Auburn, historian of the medical society, and shows papers and archives from the founding of the society over a century and a quarter ago, together with ancient surgical instruments and equipment used by physicians and surgeons of the pioneer days.

### Dutchess County

Members of the Dutchess County Medical Society were addressed by three staff members of the Veterans' Administration Hospital at the Castle Point facility on May 11. The speakers included Dr. Samuel S. Beddall, Dr. Clarence J. Goebel, and Dr. Reuben I. Shapiro. Dr. Beddall discussed, "Pathological Indications for Collapse Therapy in Pulmonary Tuberculosis." Dr. Goebel discussed, "Surgical Treatment of Pulmonary Tuberculosis," and Dr. Shapiro spoke on "Thoracoplasty in the Fifth and Sixth Decades."

### Erie County

Dr. Walden M. Ward, one of the oldest public health officers in New York State, died at his home in North Collins on May 5. He was eighty years old.

A veteran of fifty-four years of medical practice, Dr. Ward had been active until a few months ago, when his health began to fail. He served as North Collins health officer for many years and was a past president of the Erie County Medical Society.

### Herkimer County

Dr. U. Grant Williams, seventy-six, former coroner and for thirty years health officer in the Newport district, died in St. Luke's Hospital, Utica, on May 14. He had been ill about ten days with pneumonia. Dr. Williams was a

past president of the Herkimer County Medical Society

#### Kings County

The program of the Medical Society of the County of Kings on May 23 included these two addresses 'The National Health Program' by Hon. Robert F. Wagner Jr. and 'Current Aspects of Medical Legislation' by Dr. Morris Fishbein.

The Friday afternoon lecture on May 12 was on 'Office Procedure in Gynecology for the General Practitioner,' by Dr. Horace B. Ayers.

Two per cent of the Brooklyn high school students who took x-ray examinations for tuberculosis in the last three and a half years have been found in need of medical advice or service. The board of superintendents reports in recommending that the examinations be continued.

In a report to the Board of Education, the superintendents point out that radiographs of the chests of fourth, fifth, sixth and seventh grade pupils in the Brooklyn high schools have been taken since the fall of 1935 for detecting tuberculosis.

The Board of Education, the Department of Health, the Medical Society of the County of Kings, and the Brooklyn Tuberculosis and Health Association are conducting the project under the direction of Dr. Charles S. Prest, secretary of the last named organization.

On May 9 the Bay Ridge Medical Society met at the Shore Road Academy and heard a paper by Dr. William Dressler on 'Common Heart Affections.' Dr. Dressler is here on a visit from Vienna. The paper was discussed by Dr. George Anderson, of the Brooklyn Hospital. The president, Dr. Kenneth MacInnes, presided.

Six papers on scientific subjects were read at a meeting of the Williamsburg Medical Society on May 8 in the Jewish Hospital. More than 150 physicians attended.

Participating in the discussions were Dr. Berneth J. Rappaport, Dr. Moses Carnes, Dr. Benjamin Kramer, Dr. Leo Loewe, Dr. Meyer A. Rabinowitz, Dr. Leo M. Davidoff and Dr. Harold M. Rabinowitz. Dr. Charles Goldman, first vice-president of the society, presided.

#### Monroe County

Dr. Warren Wooden was elected President of the Rochester Academy of Medicine on May 3.

He was the unanimous choice of members at a meeting in which these other officers were named: vice-president, Dr. Leo F. Simpson; treasurer, Dr. Harold H. Baker; secretary, Dr. John J. Finigan; trustees, Drs. James M. Flynn, Albert D. Kaiser and W. J. Merle Scott.

Sulfapyridine, used in the treatment of pneumonia, was discussed by the academy in a symposium after the business meeting. Successful use of the drug in many cases was reported, but it was stated that an accurate evaluation of it cannot be obtained until it has been used several years under varied circumstances.

Dr. George H. Whipple, Dean of the Uni-

versity of Rochester Medical School, has received the E. M. Kolber Medal awarded for outstanding medical research by the Association of American Physicians in convention at Atlantic City, N. J.

Dr. William S. McCann, also of the University of Rochester Medical School faculty, was elected treasurer of the association at the same session.

Noted for his research on blood metabolism, blood regeneration, and treatment of secondary anemia, Dr. Whipple, Nobel prize winner of medicine, received the medal from Dr. Louis Hamman of Baltimore. The award was endowed by the late Dr. Kolber of Washington.

Physicians of western New York and northern Pennsylvania held a two-day conference at Strong Memorial Hospital in Rochester on May 20-27.

The conference also served as a gathering for alumni of the University of Rochester's School of Medicine and staff members of the hospital.

#### Nassau County

Dr. Gustave A. Fensterer of Garden City, first president of the Nassau County Medical society, received a plaque honoring him for his services as one of its founders and for his record of fifty-one years in the practice of medicine.

The presentation was made at the annual meeting of the society in Cathedral House, Garden City on May 23 at which officers for the coming year were elected. More than 150 members and guests attended the session.

When he started practice more than half a century ago, Dr. Fensterer said, germs had not been recognized as carriers of disease. Abdominal operations were unknown. He traced the development of modern medicine practically within his own lifetime.

Other speakers on the program were Dr. Calvelli, president-elect, and Dr. Bauer, president both of the county group. Dr. Peter Irving, Secretary and Dr. Terry M. Townsend, President, of the Medical Society of the State of New York, and Dr. Gerard H. Cox, of Glen Cove, who gave an illustrated talk at the scientific session on 'Plastic Surgery.'

Dr. Aaron L. Higgins of Rockville Centre, was named president-elect to head the society next year. Other officers elected are Dr. Charles W. Martin, of Woodmere, vice-president, and Dr. E. Kenneth Horton of Rockville Centre, secretary-treasurer.

Dr. Eugene Calvelli of Port Washington, succeeds Dr. Louis H. Bauer of Hempstead, who presided at the session, as president of the society. Dr. Calvelli was named president-elect last year.

Named to the board of censors are Drs. William C. Atwell, Stephen F. Gerde, Frank C. Nichols, John M. Quinn and Nathaniel H. Roblin.

#### New York County

The monthly meeting of the Medical Society of the County of New York on May 22 at the New York Academy of Medicine Building was devoted to a symposium on 'Diagnostic Aids in Cardiovascular Disease.'

1. 'The Precordial Electrocardiogram' in

# Books

Books for review should be sent to the Book Review Department at 1313 Bedford Avenue, Brooklyn, N Y. Acknowledgment of receipt will be made in these columns and deemed sufficient notification. Selection for review will be based on merit and the interest to our readers.

## RECEIVED

**Hair-Dyes and Hair-Dyeing Chemistry and Technique** By H Stanley Redgrove, F I C, and the late Gilbert A Foan. A new edition completely revised by H Stanley Redgrove and J Bari-Woolss. Octavo of 205 pages, illustrated. New York, Chemical Pub Co, 1939. Cloth, \$5.

**William B Wherry Bacteriologist.** By Martin Fischer. Quarto of 293 pages, illustrated. Springfield, Charles C Thomas, 1938. Cloth, \$4.

**The Patient Is the Unit of Practice** By Duane W Propst, M D. Octavo of 219 pages, illustrated. Springfield, Charles C Thomas, 1939. Cloth, \$3.50.

**Personal and Community Health** By C E Turner, Dr P H. Fifth edition. Octavo of 652 pages. St Louis, C V Mosby Co, 1939. Cloth, \$3.

**Physiology of the Uterus with Clinical Correlations.** By Samuel R. M Reynolds, M A. Octavo of 447 pages, illustrated. New York, Paul B Hoeber, Inc, 1939. Cloth, \$7.50.

**Getting Ready to Be a Father** By Hazel Corbin. Octavo of 48 pages, illustrated. New York, Macmillan Co, 1939. Cloth, \$1.25.

**Worth's Squint or the Binocular Reflexes and the Treatment of Strabismus** Seventh edition by F Bernard Chavasse, M A. Octavo of 688 pages, illustrated. Philadelphia, P Blakiston's Son & Co, 1939. Cloth, \$8.

**Trauma and Internal Disease A Basis for Medical and Legal Evaluation of the Etiology, Pathology, Clinical Processes Following Injury** By Frank W Spicer, M D. Octavo of 593 pages, illustrated. Philadelphia, J B Lippincott Co, 1939. Cloth, \$7.

**The Morphology of the Brachial Plexus With a Note on the Pectoral Muscle and Its Tendon Twist** By Wilfred Harris, M D. Quarto of 117 pages, illustrated. New York, Oxford University Press, 1939. Cloth, \$8.

**Handbook of the Vaccine Treatment of Chronic Rheumatic Diseases** By H Warren Crowe, M R C S. Third edition. Octavo of 95 pages. New York, Oxford University Press, 1939. Paper, \$1.25.

**Recent Advances in Medicine Clinical, Laboratory, Therapeutic** By G E Beaumont, M A, and E C Dodds, M V O. Ninth edition. Octavo of 431 pages, illustrated. Philadelphia, P Blakiston's Son & Co, 1939. Cloth, \$5.

**Sex and Internal Secretions A Survey of Recent Research** Second edition, edited by Edgar Allen. Octavo of 1346 pages, illustrated. Baltimore, Williams & Wilkins Co, 1939. Cloth, \$12.

**The Genuine Works of Hippocrates** Translated from the Greek by Francis Adams, LL D. Quarto of 384 pages. Baltimore, Williams & Wilkins Co, 1939. Cloth, \$3.

## REVIEWED

**Pulmonary Tuberculosis in Adults and Children** By James A Miller, M D, and Arvid Wallgren, M D. Octavo of 193 pages, illustrated. New York, Thomas Nelson & Sons, 1939. Cloth, \$3.50.

One of the most useful books on pulmonary tuberculosis in adults and children has just been published by Thomas Nelson & Sons. The authors of the book are Dr James Alexander Miller, of New York, and Dr Arvid Wallgren, of Gothenburg Sweden. Dr Miller covers the adult phase of the disease and Dr Wallgren that of the childhood manifestations.

The book is thoroughly comprehensive, treating as it does our latest concepts of the epidemi-

ology, etiology, pathogenesis, pathology, clinical course, physical findings, roentgenologic findings, prognosis, and treatment. The importance of distinguishing between primary and superior reinfection is properly stressed, together with the important role played by the hematogenous spread of the disease. The book is replete with helpful illustrations and carries a very complete bibliography.

As an antidote to a number of half-baked theories on the pathogenesis of tuberculosis promulgated from certain institutions in this country, we strongly recommend careful perusal of this presentation.

FOSTER MURRAY

# NEW YORK STATE JOURNAL *of* MEDICINE

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## *Editorial*

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### Compelling Testimony

Recent hearings before the Senate Committee on Education and Labor elicited potent arguments against the Wagner National Health Bill. The testimony of the distinguished physicians, health officers, and medical economists who appeared cannot be ignored in view of their universally acknowledged competence and sincerity.

The credibility of the National Health Survey is of primary importance since it supplies the motivation for the Wagner bill. If the survey is faulty in its facts or conclusions, the Wagner bill loses its reason for existence. As more than one of the speakers for the profession pointed out, there are many flaws in the National Health Survey—faulty methods, deficient personnel, erroneous facts, and arbitrary conclusions.

In Dr. Haven Emerson's words: "Estimates of neglected sickness have been much exaggerated. Theoretically possible benefits from large additional expenditures are too optimistic and problematic to be convincing." We have had other examples, in the past, of the futility of looking to federal spending, *per se*, to improve health. Millions were spent on the original Sheppard-Towner Maternal Health Act without commensurate results. As Dr. R. G. Leland stated, under the existing system of medical care in this country there has been a constant improvement in the public health. There is no evidence, here or elsewhere, to indicate "that the rate of improvement would be accelerated by the revolutionary changes" proposed in the Wagner bill.

The methods of the Wagner bill are as faulty as its factual foundation. Instead of consolidating all federal health activities (except the Army and Navy medical services) in a single Federal Department of Health, as organized medicine has repeatedly urged, it divides



administrative power among three departments, two of them lay. Overlapping, reduplication, and waste must inevitably follow such an arrangement. Furthermore, it is not to be expected that lay bureaucrats will have the specialized knowledge or experience to evaluate medical projects justly.

Although the Wagner bill purports to leave the selection of projects to the various states, actually this alleged local choice is purely factitious. The three federal officials invested with administrative power have the right to allot money to the states in accordance with their own rules and regulations. As Dr Chas Gordon Heyd observed, "the power to give and withhold money is the power to coerce and control." Since at least two of the officials to whom the Wagner bill proposes to give such power are known to favor compulsory health insurance, there is little doubt that this would be one of the plans which the states would be "induced" to submit.

Fortunately, no action will be taken on the Wagner bill this summer. Physicians should utilize the breathing space when congressmen return to their constituencies to persuade their representatives of the many dangerous flaws in this measure.

### The Right Road

Enactment of the Piper-Hampton bill, authorizing voluntary nonprofit medical expense indemnity insurance, lays the foundation for a system which should solve the financial problems of illness for a large part of the population of this state. The indigent are not helped by any insurance plans, voluntary or compulsory, they must rely on government aid and private charity. Substantial wage earners are usually able to pay for medical service out of income or savings. It is the low-salaried man, accustomed to independence in spite of his small earnings, who feels the financial pinch of illness most keenly. It is this class whose difficulties the Piper-Hampton law resolves.

Like all sound reforms, the new statute proceeds cautiously. Recognizing that medical care and hospitalization are distinct fields calling for a different brand of knowledge and experience for the proper management of each, it wisely separates medical and hospital service plans. Corporations formed under the new law may offer only one type of service.

This not only tends to more expert management but prevents monopolization of the facilities for medical care by any one group. It is unlikely that the medical profession, with its preoccupation with complicated medical problems, would ever attempt to take over hospitalization. The hospital service corporations, on the other hand,

have already shown a desire to take over medical practice. If they were permitted to offer medical care, they would soon have absolute control over the entire medical field. Fortunately, the Piper-Hampton law prevents any such contingency.

It is to be hoped that physicians will proceed as cautiously and judiciously as the law. When the latter was framed, it was envisaged that the county medical societies or other equally responsible units would organize the contemplated corporations. Many county societies are, in fact, planning to do so, awaiting only the approval of their members to proceed. In the meantime, however, small unofficial groups are starting corporations, especially in the large cities, and a certain number of physicians, overeager to get started, are joining up without waiting to see what their county medical societies will do.

No small unit can hope to provide as broad or economically efficient a service as the county medical societies, which represent the entire profession. The success of medical expense indemnity insurance will depend largely on the responsibility and capacity of the corporations sponsoring it. Physicians interested in this type of practice should refuse to affiliate themselves with any group until they have had a chance to familiarize themselves with their county society's plans.

## Geriatrics

The proportion of our population over 60 years of age is definitely increasing, due to the innumerable factors that have brought about a decrease in infant mortality and a gradual prolongation of the span of life. In this period of life are to be found the majority of involutional diseases, and other diseases and injuries occurring during old age are considerably modified as to their symptoms and course. The care of this group, both in the preservation of their physical and mental health and in the care of disease, will become an increasingly larger problem.

Thus heart disease which takes its greatest toll during the fifth decade is a far less frequent cause of death in old age. Paralysis agitans, senile tremor, persistent insomnia, and the mental aberrations so frequently an accompaniment of senility require special measures for their management. The tendency to constipation in the aged must be combated by attention to diet and exercise.

The enactment of legislation which makes it possible for elderly people to retire from active work brings with it an added problem. Many will find it difficult to adjust themselves to a new mode of living and it is important to direct the mental activity of these retired and unemployed people so that they will not feel themselves to have

administrative power among three departments, two of them lay Overlapping, reduplication, and waste must inevitably follow such an arrangement Furthermore, it is not to be expected that lay bureaucrats will have the specialized knowledge or experience to evaluate medical projects justly

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## Geriatrics

The proportion of our population over 60 years of age is definitely increasing, due to the innumerable factors that have brought about a decrease in infant mortality and a gradual prolongation of the span of life. In this period of life are to be found the majority of involuntional diseases, and other diseases and injuries occurring during old age are considerably modified as to their symptoms and course. The care of this group, both in the preservation of their physical and mental health and in the care of disease, will become an increasingly larger problem.

Thus heart disease which takes its greatest toll during the fifth decade is a far less frequent cause of death in old age. Paralysis agitans, senile tremor, persistent insomnia, and the mental aberrations so frequently an accompaniment of senility require special measures for their management. The tendency to constipation in the aged must be combated by attention to diet and exercise.

The enactment of legislation which makes it possible for elderly people to retire from active work brings with it an added problem. Many will find it difficult to adjust themselves to a new mode of living and it is important to direct the mental activity of these retired and unemployed people so that they will not  
to have

passed the stage of usefulness Each one will require individual attention and no uniform program can be outlined

Geriatrics, it appears, may branch out as a specialty in medicine even as pediatrics, the other extreme, did years ago Camp<sup>1</sup> feels that intensive study of the functional and organic changes of old age is necessary, since the therapy of these conditions is obviously different from that utilized in the middle decades of life

An Anticonvulsant for Epilepsy

For the control of epileptic seizures, dependence has been placed largely upon the barbiturates, despite the fact that a beneficial result is often not obtained even with large doses Philips,<sup>2</sup> in the treatment of 14 epileptics in whom prior administration of phenobarbital had no effect, employed sodium diphenylhydantoinate as an anticonvulsant with excellent results The patients were given 0.1 Gm of the drug three times daily before meals On this dosage, 13 of the cases ceased to have convulsive seizures, and their general attitude and behavior improved considerably In the remaining patient, the occasional attacks of *grand mal* disappeared upon increasing the dose to 0.4 Gm during the day and an additional 0.1 Gm at night

From his observations of these patients for over a year, Philips finds that the effectiveness of sodium diphenylhydantoinate has remained unchanged Another advantage noted is the absence of the marked depression which is experienced by epileptics who take large doses of phenobarbital Sodium diphenylhydantoinate, because of its apparent ability to control the convulsive attacks without producing a hypnotic effect, would seem to be an ideal anticonvulsant

<sup>1</sup> Camp, C. D. J. Michigan M. Soc. 38: 289 (1939)  
<sup>2</sup> Philips, D. P. J. Michigan M. Soc. 38: 317 (April) 1939

The 1939 MEDICAL DIRECTORY of New York, New Jersey, and Connecticut

CALLING ALL PHYSICIANS IN NEW YORK STATE!

The new edition of the MEDICAL DIRECTORY is now being compiled for publication in December, 1939 The *deadlines for changes are:*

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PUBLICATION COMMITTEE

and are one of the chief reasons for calling a physician after midnight. The question for immediate decision by the physician is whether the smothering spells result from cardiac disease or whether they are manifestations of bronchial spasm associated with pulmonary disease. If the condition is cardiac, it is more serious than if it is pulmonary. The history will be an aid in deciding the situation. If the patient is a known cardiac having either mitral stenosis, aortic valvular disease, hypertension, syphilitic heart disease, coronary artery disease or a history of previous coronary thrombosis, the attack very likely is due to left ventricular failure. One will then find marked evidence of moisture in the lungs. Very few, if any, squeaks will be heard. Frequently the patient will be expectorating blood-tinged sputum. The therapy for quick relief in this situation is  $\frac{1}{4}$  gr of morphine sulfate, and  $\frac{1}{100}$  gr of atropine sulfate. Sometimes nitroglycerin can be added with benefit in the hypertensive cases. Improvement usually occurs within one hour. A procedure that will give prompt relief in the hypertensive, plethoric patient is the rapid withdrawal of 500 cc. of blood from the cubital vein.

The sudden onset of shortness of breath may be the first symptom of coronary occlusion. Therefore, it is important that one be certain that this condition is not present if he is considering the use of epinephrine subcutaneously. This drug frequently relieves suffocating spells associated with bronchial spasm, but it should never be used if there is the slightest suspicion that the smothering feeling is cardiac in origin.

An aneurysm of the aorta may cause sudden attacks of shortness of breath by producing left ventricular failure or sudden atelectasis of the lung. Physical examination and roentgen ray studies assist in identifying this condition. Other causes of shortness of breath mistakenly interpreted as cardiac are pulmonary embolism, spontaneous pneumothorax, pleurisy with effusion, bronchial carcinoma, and mediastinal tumors. Again

the history and physical examination, and occasionally the roentgen ray may establish the correct diagnosis.

### Syncope

Syncope or fainting spells cause great alarm to the family who unfortunately believe such symptoms indicate heart disease. Faintness or brief syncope is very common and indicates anemia of the brain. The attack may be benign or indicate serious disease. If an individual experiencing a fainting spell should be diagnosed erroneously as having heart disease, years of unnecessary invalidism will result. The physician's duty when called to see a patient with syncope is to decide whether or not the fainting spell is of cardiac origin. If the origin is definitely cardiac, the syncope requires therapy, while if the attack is not, reassurance will do more than medication in restoring the individual to normal health.

Some patients faint easily under emotional strain, at the sight of blood, when suffering from severe pain, if suddenly changed from the prone to the upright position, or in poorly ventilated, crowded rooms. Usually by the time a physician arrives the attack is over. He frequently is told by the family that the pulse was imperceptible and that this was considered evidence of heart weakness. Because the syncope of peripheral circulatory failure resembles that of cardiac origin, and because the treatment of the two conditions is entirely different, it is very important that a decision as to which is present be made quickly. Both may present pallor, weakness, fall in blood pressure, sweating, dizziness, faintness, collapse, and unconsciousness. At the bedside, valuable evidence may be obtained that will enable the physician to differentiate between the two. In both conditions the heart may be found to be rapid, however, a slow heart would rule out peripheral circulatory failure. Of further aid are the empty neck veins in peripheral circulatory collapse, and the full veins in cardiac failure. Nevertheless, I have seen instances where venous distention was absent in recent acute cardiac failure,

procedure usually indicates angina pectoris due to temporary myocardial ischemia rather than infarction. Recently I have used octyl nitrite by inhalation in angina pectoris with benefit. Amyl nitrite has also been used for the same purpose, but it has been my experience that some patients receiving this drug complain more of the distressing fullness in the head resulting from it than from the previous discomfort in the chest. However, if no response occurs from nitroglycerin, one should consider that coronary thrombosis has occurred and proper therapy should be instituted. Morphine sulfate should be administered for the immediate relief of pain. The dosage depends upon the individual and the gravity of the situation. In some instances,  $\frac{1}{4}$  gr hypodermically, repeated in one-half hour, will be sufficient, at times it will be necessary to use  $\frac{1}{2}$  gr as the initial dose. There are some patients in whom morphine produces vomiting. This should be avoided if possible. In these patients who are sensitive to morphine, I have found dilaudid hydrochloride,  $\frac{1}{24}$  to  $\frac{1}{32}$  gr hypodermically, helpful in decreasing the severity of the pain.

Patients with coronary thrombosis continue to have abnormal sensations of a lesser degree even after the administration of morphine. The persistence of these sensations is further valuable evidence that coronary occlusion has occurred. However, after the initial dose of morphine, mild sedatives in sufficient dosage usually control the symptoms. The drugs of choice under these circumstances are phenobarbital, given in doses of  $\frac{1}{2}$  to 1 gr every four hours, or 15 gr of sodium bromide every four hours.

When the diagnosis of coronary thrombosis has been established, every effort should be made to secure the mental and physical rest of the patient. Special nursing care should be instituted in order that this may be accomplished satisfactorily. All effort on the part of the patient should be avoided. Under no circumstances should he be moved to a hospital for laboratory tests. A patient recovering from coronary thrombosis

without an electrocardiogram is better than a dead one with an electrocardiogram. The treatment of the initial shock will be discussed later. The use of an oxygen tent is desirable in the presence of marked dyspnea and cyanosis, provided the tent is tolerated well.

It is extremely important to direct attention to the occurrence of pain in acute infectious pericarditis. The similarity of the condition to coronary thrombosis because of the location and persistence of the pain, the pericardial friction rub, and the failure of nitrites or opiates to afford relief has led to many erroneous diagnoses. Of assistance in differentiating the two conditions are the history of a recent infection, and the position of the patient in bed. In acute infectious pericarditis the patient is usually sitting upright or bending forward in bed, while the patient with coronary thrombosis is either lying in bed or walking around. Of further aid is the widespread area over which the friction rub is heard in acute infectious pericarditis, in contrast to the small area over which the rub is heard in myocardial infarction. In acute pericarditis repeated doses of morphine are usually required to relieve the pain.

Dissecting aneurysm of the aorta simulates coronary thrombosis. The severe pain in the back and the absence of a drop in blood pressure are in favor of a dissecting aneurysm. The relief of pain requires morphine. Many noncardiac conditions, associated with pain in the chest, simulate coronary thrombosis, particularly gallbladder and gastrointestinal disease, and pulmonary diseases, such as pneumonia, pleurisy, and pulmonary embolism. All of these may require morphine. After the patient has been relieved from pain, the condition can be differentiated later as a more detailed history and a careful physical examination are made.

### Dyspnea

Sudden attacks of shortness of breath or smothering spells cause considerable alarm to the patient and his family. These attacks frequently occur at night

and are one of the chief reasons for calling a physician after midnight. The question for immediate decision by the physician is whether the smothering spells result from cardiac disease or whether they are manifestations of bronchial spasm associated with pulmonary disease. If the condition is cardiac, it is more serious than if it is pulmonary. The history will be an aid in deciding the situation. If the patient is a known cardiac having either mitral stenosis, aortic valvular disease, hypertension, syphilitic heart disease, coronary artery disease, or a history of previous coronary thrombosis, the attack very likely is due to left ventricular failure. One will then find marked evidence of moisture in the lungs. Very few, if any, squeaks will be heard. Frequently the patient will be expectorating blood tinged sputum. The therapy for quick relief in this situation is  $\frac{1}{4}$  gr of morphine sulfate, and  $\frac{1}{100}$  gr of atropine sulfate. Sometimes nitroglycerin can be added with benefit in the hypertensive cases. Improvement usually occurs within one hour. A procedure that will give prompt relief in the hypertensive, plethoric patient is the rapid withdrawal of 500 cc of blood from the cubital vein.

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and in such cases the presence of striking signs of cardiac disease should assist in establishing a correct diagnosis. Additional evidence in favor of peripheral circulatory collapse would be a history of recent blood loss.

The physiologic mechanisms responsible for cardiac syncope are several. In the majority of cases the mechanism is bradycardia, which if sufficiently slow may result in an asystole capable of producing a convulsion. The decreased heart rate may be of reflex neurogenic origin from carotid sinus stimulation. Under these circumstances the attacks occur spontaneously and can be reproduced by pressure over one of the carotid sinuses. I have seen patients in whom the irritation of the carotid sinus was caused by pressure of a tight collar, tuberculous cervical glands, or an enlarged thyroid gland. In these cases the diagnosis of epilepsy had been made. The correct diagnosis was established when the attacks disappeared following the correction of carotid sinus irritation. Syncopal seizures may be produced by vasovagal reflexes, particularly from lesions of the gastrointestinal tract. Weiss described a patient with such attacks, who had a diverticulum of the esophagus, and in whom syncope could be induced by swallowing.

In contrast to these cardiac syncopal episodes of reflex origin, there are similar attacks of a more serious nature caused by disease of the myocardium. Here the cause of the syncope is a conduction defect which produces a change in the rhythm of the heart from a partial to a complete heart block. If this condition persists, and the heart is markedly slowed, the patient may become unconscious and if the asystole is more prolonged, convulsions will occur, producing the Morgagnu-Stokes-Adams syndrome. The patient will have a very slow heart rate from 24 to 40 beats per minute. I have seen a number of patients diagnosed epileptic who had this condition.

Brief histories of two striking examples are

A male, 54 years of age, was seen on May 15, 1935, because of attacks of unconsciousness. He had been in good health until ten days previously when, while addressing a Sunday school class, he suddenly fell to the floor and had a generalized convulsion. When the physician reached him, the attack was over and the patient's pulse rate was 88 beats per minute. A few days later there occurred another episode of unconsciousness followed by convulsions, causing the patient to fall from a box upon which he had been sitting. One week later he had three spells of loss of consciousness without convulsions. During these attacks the physician was unable to detect anything wrong with the blood pressure or the heart rate. When I saw the patient the physical examination was essentially negative, except for a systolic murmur and a ringing second sound over the aortic area. The blood pressure was 110 mm mercury systolic and 80 mm diastolic. He was sent into the hospital for observation, where the nurses and interns noted that the heart rate varied from 80 to 40 beats per minute during a seizure. Electrocardiograms were made at the time and showed partial, followed by complete, heart block. The serology was negative. A small aneurysm of the aorta was reported on fluoroscopic examination. The patient was given intensive antisyphilitic treatment and ephedrine, following which he has remained well. Repeated electrocardiograms continue to reveal evidence of bundle-branch block.

The second patient, a female aged 52 years, was seen because of attacks of unconsciousness and faintness of two years' duration. During this time she had severe attacks of syncope, during which she would lose consciousness momentarily and occasionally have convulsions. The patient had been under the care of a general practitioner and a neurologist, and had been examined repeatedly. She was thought to have either epilepsy or brain tumor. After a period of two years of invalidism she was seen by me with her physician. The chief complaint was pain beneath the sternum, associated with recurrent episodes of syncope and convulsions. While I was at the bedside, the patient complained of pain beneath the sternum, suddenly became unconscious, and had a generalized convulsion during which the pulse rate was 24 beats per minute. The heart was found to be slightly enlarged to the left. There was a loud blowing systolic murmur at the apex, followed by four short feeble beats. The apex rate was 24 beats per minute and the blood pressure was 110 mm mercury systolic and 80 mm diastolic. A diagnosis of heart block was made and later

confirmed by an electrocardiogram Epinephrine was given subcutaneously and later ephedrine was administered orally. Following this the attacks gradually disappeared, the patient returned to work, and for the past two years has had no recurrence. She takes one dose of ephedrine daily. At the present time the electrocardiogram reveals normal sinus rhythm and no disturbance of conduction.

It is important to emphasize the fact that in bradycardia and cardiac standstill the electrocardiographic changes may be similar, regardless of whether the etiology is reflex or myocardial. Therefore, the prognostic significance of the condition cannot be determined from electrocardiograms.

Patients with aortic stenosis frequently have attacks of syncope. The syncope results from cerebral anemia, perhaps because of low pulse pressure, or disease of the left ventricle, and possibly as a result of carotid sinus irritation with stimulation of the vagus, producing a slowing of the heart. These attacks are sometimes precipitated by severe exertion, and sudden death is not uncommon. If a patient with aortic stenosis develops syncope and a slow heart,  $\frac{1}{160}$  gr. of atropine sulfate should be given hypodermically.

Another rare cause of unconsciousness may be transitory ventricular fibrillation. It is possible at the bedside to suspect this arrhythmia if there occur frequent premature beats followed by a tachycardia, varying in rate. While this is a very uncommon condition, the possibility of its appearance must be appreciated, because the treatment for it is entirely opposite to that used for unconsciousness due to bradycardia.

It is apparent from this discussion that similar syncopal attacks can be produced by either cardiac or reflex disturbances. If proper therapy is to be instituted, the etiology and significance of the syncope must be determined. In some instances the etiology cannot be discernible at once, and then the immediate treatment will depend upon the gravity of the situation. If unconsciousness and a slow heart are present,  $\frac{1}{160}$  to  $\frac{1}{128}$  gr. of atropine sulfate should be administered hypodermically,

and if the cause is reflex, immediate relief will ensue. However, if the situation is not relieved, or if convulsions occur, 1-1,000 solution, 1 cc. of epinephrine hydrochloride should be given subcutaneously. In some instances it may be necessary to inject the solution directly into the heart. The usual site for this is to the right of the sternum in the fourth intercostal space. It may be necessary to repeat the subcutaneous injections of epinephrine, and later maintain the effect by oral administration of  $\frac{1}{8}$  to  $\frac{1}{4}$  gr. of ephedrine or by intramuscular injection of 1 cc. of an oily solution containing 2 mg. of epinephrine. If it is certain that the condition is due to ventricular fibrillation, the intravenous injection of quinine or quinidine may prove life-saving. However, it should be fully appreciated that quinine and quinidine are cardiac depressants and are definitely contraindicated in heart block. If there is the slightest question whether the latter condition is present, these drugs should not be used.

### Collapse

Collapse may be a manifestation of acute cardiac failure or acute peripheral circulatory failure. Certain features are characteristic of both conditions: weakness, exhaustion, pallor, cold moist skin, low blood pressure, particularly the pulse pressure, and cerebral manifestations varying from mild confusion to unconsciousness. The therapy for the two conditions is entirely different, and therefore it is important that every effort be made to determine the cause of the collapse. In acute cardiac failure additional signs will be found, e.g., dyspnea, orthopnea, moisture in the lungs, usually distended neck veins, and increased venous pressure. The heart sounds often will be louder than when the collapse is of peripheral origin. In addition, a history of hemorrhage is evidence in favor of peripheral circulatory failure.

There are three main reasons for collapse in acute cardiac failure: (1) acute severe injury to the myocardium as in diphtheria, or acute coronary thrombosis, (2) sudden mechanical embarrass-

ment of the heart action as with sudden effusion into the pericardial cavity, or hemopericardium, and (3) severe tachycardia occurring in a heart with an already damaged myocardium. The treatment of collapse due to peripheral circulatory failure is epinephrine and intravenous fluids. The treatment of the collapse of acute cardiac failure depends on its cause. If due to infarction of the myocardium,  $\frac{1}{4}$  gr of morphine sulfate subcutaneously, and intravenous injections of 100 cc of 50 per cent solution of dextrose, repeated in two to three hours as necessary, have proved valuable in my experience. Cardiac drugs, particularly digitalis, are contraindicated in both conditions. If the collapse is due to cardiac tamponade resulting from effusion or hemorrhage into the pericardial sac, aspiration of the cavity is indicated. If the collapse manifestations are associated with extreme tachycardia, satisfactory treatment will depend upon the recognition of the type of tachycardia present.

### Heart Consciousness or Tachycardia

The physician frequently is summoned because of a sudden onset of heart consciousness. Often the discomfort is due to forcible heart action or premature beats, resulting from emotional disturbances or dysfunction of the gastrointestinal tract, and is without serious import because it does not indicate heart disease. The correct interpretation and the proper therapy of this symptom determines whether or not the patient becomes a chronic invalid with a cardiac neurosis.

However, the heart consciousness may be due to tachycardia of regular or irregular rhythm. The differentiation of the several types of tachycardia is important, because in some the use of digitalis or quinidine is indicated and in others it is not. The first question to decide as quickly as possible is whether the tachycardia is of sinus or ectopic origin. Sinus tachycardia is the type of rapid heart action associated with exercise, emotional disturbance, fever, drug intoxication, anemia, hyperthyroidism, severe constitutional disease, and pe-

ripheral circulatory failure. The onset and termination of such tachycardia is usually gradual. There are no signs of heart disease, the heart sounds are faint in all conditions except hyperthyroidism in which they are loud, the rate varies between 120 and 150 beats per minute, excitement, emotion, and exercise increase the rate, carotid sinus pressure fails to slow the heart, digitalis and quinidine are without effect, and elimination of the causative factor restores the heart rate to normal. However, the history of an abrupt onset, the presence of marked irregularity of pulse, the presence of congestion in the lungs or distended veins in the neck indicate a tachycardia of ectopic origin. The history is of extreme importance in differentiating these types, in fact, if thoughtful attention is paid to it and careful observations are made at the bedside, instrumental methods of diagnosis will rarely be necessary for this differentiation.

Paroxysmal auricular tachycardia is a distressing and sometimes alarming condition. The history will disclose that previous attacks were characterized by a sudden onset and an abrupt termination, often induced by deep breathing or vomiting. There may be a history of good health between attacks. Physical examination will reveal a small or normal sized heart with a very rapid rate of 180 or more beats per minute with regular rhythm. Carotid sinus stimulation or ocular pressure will frequently produce a dramatic slowing of the pulse. The induction of vomiting has been successful in terminating attacks. Weiss recently recommended that syrup of ipecac be used for that purpose. The drug which is most effective is acetyl-beta-methyl-choline chloride (mecholyl), given subcutaneously in doses of 10 to 20 mg. It is important to massage the site of the injection for a few minutes. Intravenous quinine or quinidine may also stop an attack. It is imperative to realize that paroxysmal auricular tachycardia may occur suddenly during anesthesia, labor, or an acute illness. The following is an example of onset under an unusual circumstance

A female aged 30 years who was a known asthmatic for many years, was seen on the fifth day of an acute illness previously diagnosed as pneumococcal Type I lobar pneumonia. I was called because of the sudden onset of a very rapid heart action. The apex rate was 40 beats per quarter minute and each quarter was the same. The rate was consistently 100 beats per minute obtained for several consecutive minutes. There was no enlargement of the heart. The blood pressure was 120 mm mercury systolic and 80 mm diastolic. With vagus pressure the heart slowed to 120 beats per minute and the patient felt better. She was then digitalized rapidly and made an uneventful recovery.

Digitalis should be given after the attack ceases. In my experience this has proved valuable in preventing recurrence. After digitalization the patient should be given a daily maintenance dose.

Auricular flutter is occasionally seen. It may be impossible to identify this type of tachycardia without an electrocardiogram. However, flutter may be suspected if the rate is temporarily slowed by carotid sinus pressure, or if occasional periods of slowing of the rate occur spontaneously. The neck veins sometimes exhibit flutter waves. The treatment of auricular flutter is digitalis, given in full therapeutic dosage. The rhythm usually changes to fibrillation, and quinidine may then be administered. Sensitivity to quinidine should always be determined first by a test dose of 3 gr., if no untoward ocular or auditory symptoms appear, this dose should then be repeated every four hours, until the heart rate and rhythm are normal or until marked toxic manifestations become evident.

The most frequent type of tachycardia encountered is auricular fibrillation. There should be no difficulty in identifying this irregularity. The heart sounds and pulse vary in force, rate, and rhythm. There is marked deficit between the pulse and apex rates. Careful study of the pulse characteristics and the peculiar blood pressure oscillations enables one to diagnose this condition at the bedside. Attacks of irregular rapid heart action may be transitory and without any signs of congestive failure. The treatment of such attacks without failure

is usually with sedatives. The cause may be a toxic adenoma of the thyroid or reflex from a gastrointestinal disturbance. Quinidine is also of value in the treatment of the transitory types of auricular fibrillation. In other instances the sudden change in rate and rhythm adds an extra burden to a previously damaged myocardium, so that alarming symptoms of failure appear.

When fibrillation is associated with signs of failure, digitalis should be used. The total amount is usually calculated on the basis of one cat unit for every 10 pounds of body weight. Caution should always be used in the administration of digitalis to elderly patients. Satisfactory response usually occurs from the oral administration of the total amount over a period of three days. However, if alarming symptoms are present, the total calculated amount may be given within twenty four hours as follows: one half of the total amount for the first dose, followed every six hours by a dose of one-half of the remaining amount. This plan of treatment is usually successful. If vomiting interferes with the oral administration of digitalis, rectal administration of the tincture of digitalis in normal saline solution usually produces the full therapeutic effect. If the situation is grave and rapid digitalization is indicated, 0.5 mg. of ouabain may be given intravenously every four hours, provided the patient has not had any digitalis preparation for one month. Whenever a patient is being rapidly digitalized, it is the physician's duty and responsibility to see him before each dose is given. Intramuscular and intravenous digitalis therapy are rarely necessary. After the heart rate has slowed to 70 beats per minute, a daily dose should be given to maintain this effect. The amount necessary must be determined for each individual. No set rule can be followed.

Serious tachycardia may follow an attack of coronary thrombosis. This is usually due to ectopic rhythm of ventricular origin, and if persistent may lead to ventricular fibrillation and death. The condition may be suspected if pre-



# THE PRESENT STATUS OF THE TYPHOID CARRIER PROBLEM

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THE present report is the outcome of a symposium on the typhoid carrier problem held at the New York Post Graduate Hospital in June, 1936. Papers were given at that time by public health authorities representing New York City and the states of Connecticut, New Jersey, and New York, and by clinicians interested in this subject. The statistics and opinions of these authors have been used freely.

Among the published articles on this subject should be mentioned Whipple's<sup>3</sup> report of 1929, entitled "Surgical Treatment of Bile Typhoid Carriers." This contribution contains a review of the literature up to that time and was the first of practical clinical importance to appear in this country. Garbat's<sup>4</sup> monograph, "Typhoid Carriers and Typhoid Immunity," published in 1922, is an excellent comprehensive study of the diagnosis and treatment of the typhoid carrier, particularly in regard to the bacteriologic study of the duodenal bile. More recently, Senftner and Coughlin,<sup>5</sup> Bigelow and Anderson,<sup>2</sup> and Collier and Forsbeck<sup>6</sup> have made excellent contributions to this subject, including reports of operated cases.

Deibert<sup>7</sup> states that typhoid carriers are more prevalent than is commonly realized. Stebbins<sup>8</sup> estimated that as of January 1, 1936, there were approximately 5,000 typhoid carriers in New York State exclusive of New York City, although the typhoid carrier register listed only 361. Frant<sup>10</sup> reports that on July 1, 1936, the New York City Department of Health had 405 chronic typhoid carriers under observation. Bigelow and Anderson estimated that in the State of Massachusetts, in 1933, there were ap-

proximately 1,100 carriers, although only 75 were registered.

Typhoid carriers may be defined as immune persons who harbor typhoid bacilli and so may spread the disease. The typhoid carrier is now the chief infecting agent in typhoid fever. Knowlton<sup>12</sup> reports that in the State of Connecticut not a single case of typhoid fever was traced to water, food, or milk during the past four years. During the past five years in New York State no typhoid fever has occurred due to contaminated water supply, while carriers have been directly responsible for a large proportion of cases, according to Stebbins.

Anderson, Hamblen, and Smith<sup>1</sup> report that the incidence of residual typhoid fever in a given community is not directly proportional to the total number of carriers in the community, but proportional to the total number of carriers produced during the preceding five to ten years, since most carriers infect or immunize their immediate environment during this period.

Typhoid carriers may be classified as temporary or chronic. According to Garbat, one-third of typhoid fever patients continue to discharge typhoid bacilli after the temperature becomes normal. A great majority of these cease to discharge the organisms within six months. Spontaneous cure after six months is rare, and persons who show the presence of typhoid bacilli after a year are to be regarded as permanent or chronic carriers. From 2 to 9 per cent of all typhoid fever patients become permanent carriers.<sup>11</sup>

Typhoid carriers are also classified roughly as feces carriers and urine carriers, the latter being rare. Garbat, in 1922, as the result of a study of 164

cases of typhoid fever, demonstrated that there are three distinct types of feces carriers, according to the nidus of infection: the liver carrier, the gallbladder carrier, and the intestinal carrier. In the first two, the bacilli enter the intestine with the bile. In the intestinal type, the bile passages are free from infection. The gallbladder carrier is by far the most common of the three types of feces carriers. Garbat also pointed out that duodenal intubation culture was a more reliable method of determining the carrier state than stool culture. He showed that stool culture failed to detect the bacilli in 15 per cent of bile carriers.

Stebbins reports that the epidemiologic investigation of sporadic cases of typhoid fever in New York State has proved to be the most effective method of discovering carriers. He further states that in New York State since 1929, coincident with an increased rigidity of requirement for release of typhoid fever cases, there has been an increase in the proportion of individuals recovering from typhoid fever who have been found to be chronic typhoid carriers. Prior to 1929, 0.01 per cent of recovered cases of typhoid fever were found to be chronic typhoid carriers by release cultures. In 1934, this figure rose to 3.9 per cent.

To ensure obtaining authentic stool specimens, Frant reports that in the Department of Health of the City of New York, capsules that contain lycopodium are given to the carrier, as advocated by Rosenthal.<sup>23</sup> Stools collected later readily reveal the spores of lycopodium.

The typhoid carrier, once detected, is carefully controlled by the public health authorities according to the provisions of the Sanitary Code. The regulations of the Sanitary Code of New York City have proved very effective in the control of carriers, according to Frant. In this city, with the exception of Typhoid Mary and 2 others, there have been but 24 cases of typhoid fever that could be traced to known typhoid carriers.

The three forms of treatment in use at present have shown a variable degree of

success. These are medical, x-ray, and surgical.

Browning, *et al.*,<sup>3</sup> in 1933 reported a series of cases treated medically without success. Among the methods tried were the following: chemotherapy, alteration of reaction in flora of the intestine, intestinal implantation of antagonistic coliform bacilli, bacteriophage, and vaccines.

Lyon,<sup>19</sup> on the other hand, has reported a case of a typhoid carrier who persisted as a carrier following cholecystectomy and who was found to be free of *B. typhosus* after a prolonged course of treatment by means of the duodenal tube.

Ottenberg,<sup>21</sup> in 1933 reported that flumerin, a mercury fluorescein derivative, when given intravenously to dogs or rabbits, conferred active bactericidal power on the bile. He more recently administered this drug to 3 typhoid carriers with cure of the carrier state in 1 case, as shown by repeatedly negative bile cultures for one year following treatment.<sup>22</sup> Ottenberg believes it is possible to cure the carrier state with flumerin provided the gallbladder is functioning, as revealed by cholecystography.

MacNeal<sup>20</sup> reports that bacteriophage administered into the vein of a typhoid carrier can be recovered from the bile and from the wall of the gallbladder which is surgically removed some hours later. MacNeal also states that patients subjected to such injection prior to operation have become free from their infecting bacteria in an unusually satisfactory manner.

X-ray treatment has been advocated by Gulbrandsen.<sup>12</sup> He reports results of roentgen-therapy over a period of two years in 12 chronic fecal carriers of *B. typhosus*, not coming to operation. One-third of the cases were rendered free of *B. typhosus*, as determined by repeated stool examinations, for periods varying from ten to twenty-four months. Elsom, Miller, Forrester, and Chamberlin<sup>8</sup> irradiated 12 bile typhoid carriers and observed a persistence of the typhoid organisms in the bile and feces in every case.

TABLE 1.—RESULTS OF CHOLECYSTECTOMY IN TYPHOID CARRIERS (BILE) (PARATYPHOID CARRIERS INCLUDED)

	Year	No. Operated Cases	Operative Deaths	Percentage Operative Deaths	No. Cases Surviving Operation	No. Cases Followed	Percentage Followed	No. Followed Cases Cured of Carrier State	One or More Neg. Bile Cultures	No. Cases	Percentage Followed Cases Cured of Carrier State
Haaland & Haaland	1927	13	1	8	12	12	100	11	4	92	
Haaland & Haaland	1929	4	0	0	4	4	100	3	1	75	
Whipple	1929	12	2	17	10	10	100	0	5	90	
Vogelsang & Haaland	1931	8	0	0	8	8	100	0	4	75	
Vogelsang & Haaland	1933	7	1	14	6	6	85	4	4	80	
Swensson	1933	14	3	21	11	10	90	9	7	90	
Bigelow & Anderson	1933	12	0	0	12	12	100	12	10	100	
Senftner & Coughlin	1933	61	8	13	53	25	47	17	17	68	
N. Y. Post-Grad. Hospital	1935	5	0	0	5	5	100	5	5	100	
Deibert	1936	1	0	0	1	1	100	3	3	100	
Coller & Forsbeck	1937	18	0	0	18	18	100	18	16	88	0
N. Y. Post-Grad. Hospital	1938	3	0	0	3	3	100	2	2	67	
Total		160	15	9	145	115	93	97	78	85	8

\* Cures based on either negative stool cultures or negative bile cultures, or both

Surgical treatment of the bile carrier state, as first advocated by Dehler,<sup>6</sup> in 1907, has met with considerable success. The literature records many instances of cure of the bile carrier state following cholecystectomy. Haaland,<sup>13</sup> Whipple,<sup>20</sup> Vogelsang,<sup>21</sup> Swensson,<sup>24</sup> Bigelow and Anderson,<sup>3</sup> Senftner and Coughlin,<sup>24</sup> Browning,<sup>3</sup> Deibert,<sup>7</sup> Coller and Forsbeck,<sup>8</sup> and the author<sup>16</sup> have reported series of cases operated upon, with reported cures ranging from 68 to 100 per cent. Taking into consideration several series of published cases (Table 1) of cholecystectomy in typhoid carriers, 86 per cent have been reported as cured. Senftner and Coughlin advise against operation in individuals past the age of 50, because of the marked increase in mortality rate beyond this age.

Criteria of cure of the typhoid carrier state are now based on from 1 to 3 negative bile cultures and negative stool cultures. Prior to the introduction of the duodenal tube, stool culture was the only means available for detecting the typhoid carrier state. When Garbat<sup>11</sup> pointed out that stool culture reports were erroneous in 15 per cent of cases, he stressed the significance of bile cultures in all cases. The first large series of cases reported with cures based on negative bile cultures was that of Senftner and Coughlin.<sup>24</sup> Their cures were based on 3 negative bile and neg-

cultures. Bigelow and Anderson<sup>3</sup> require 1 negative bile culture and negative stool cultures before they consider a carrier cured. Coller and Forsbeck,<sup>8</sup> use 1 negative bile culture and negative stool cultures as sufficient proof of eradication of the carrier state.

Forsbeck and Hollon<sup>9</sup> state that maximum confidence may be placed in a negative laboratory report on bile obtained in connection with the diagnosis and release of carriers, provided the bile specimen is amber, clear, viscous, and alkaline, provided it has been obtained following stimulation with magnesium sulfate, and provided it has been protected on its way to the laboratory in buffered broth. He further contends that by using the above standards, the number of release bile cultures may be reduced from 2 or 3 down to 1. He cautions against reliance on cultures of bile mixed with gastric juice where the pH is below 5. He found that cultures of infected bile with pH of 2 or below after thirty minutes yielded no growth of typhoid bacilli.

Since 1931, 25 typhoid carriers have been investigated<sup>17</sup> in our combined medical and surgical gallbladder clinic. Eight of these were operated upon at our hospital for cure of the carrier state. The remaining 17 carriers were investigated only. Duodenal drainages were performed by the encapsulated method.



Twiss<sup>27</sup> to determine the presence or absence of *B typhosus* in the bile. Nine of the 17 had had gallbladder operations at other hospitals. Our bile cultures were reported negative for *B typhosus* in each of these cases. Of the remaining 8 carriers, 2 did not return for completion of tests, 2 were proved to be bile carriers, 1 is believed to be an intestinal carrier, and 3 carriers were recommended for release, bile and stool cultures being negative.

Of our 8 operated cases\* (Table 2), aged 19 to 48, 1 had been a carrier for only three months at the time of cholecystectomy, the others had been carriers for periods ranging from fifteen months to ten years. Six were asymptomatic. In 4 cases cholecystograms showed normal visualization and normal emptying of the gallbladder, in 2, no visualization, with shadows of stones in 1 of these cases. Bile and stool cultures<sup>4</sup> prior to operation were positive for *B typhosus* in all cases.

At operation, cholecystectomy was performed in every case, and appendectomy as well in 5 of the cases. Cultures were taken of the gallbladder bile and wall routinely, and of gallstones, cystic duct nodes, common duct bile, and liver bile, whenever possible (Table 2).

Gallstones were found in all cases but 1, this being the patient who had had typhoid fever three months prior to operation. Cultures of operative specimens were reported positive for *B typhosus* invariably. All 8 patients recovered from the operation. Bile and stool cultures subsequent to discharge from the hospital were found negative for *B typhosus* in 7 cases. In 1 case, bile cultures are still positive eighteen months after operation. Seven of the 8 carriers (88 per cent) may therefore be considered cured of the carrier state.

## Comment

Our great problem at present is the detection of unrecognized carriers. Every possible effort should be made to detect

TABLE 2.—TYPHOID CARRIERS (BILE) OPERATED UPON AT THE NEW YORK POST-GRADUATE HOSPITAL—8 CASES (1931-1938)

Preoperative Findings				Operative Findings						Postoperative Findings				Follow-Up Notes													
History Number	Sex and Age	Date of Typhoid	Months	Years	Symptoms	Cholecystogram	Reces	Duodenal	Cholecystectomy	Appendectomy	Date of Operation	Path. Chronic Cholecystitis	Gallstones Found	Bile	C B Wall	Gallstones	Cystic Duct	Reces	Duodenal	Culture Postop	1st Neg Culture of Duodenal Contents	Mortality	Duodenal	Cultures	Reces	Date of Latest Visit	Results
64066	M 19	1924	15		0		+	+	+	+	1-30-31	+	+	+	+	+	+	+	+	12th	0 weeks	0	3-	8-		1931	Cured
A4922	F 33	1932	3		0	N V	+	+	+	+	7-8-32	+	+	+	+	+	+	+	19th	19th	19th	0	1-	8-		7-27-32	Cured
A75854	M 20	1931	2 1/2		0	N V	+	+	+	+	1-20-34	+	+	+	+	+	+	+	25th	25th	25th	0	3-	8-		3-7-34	Cured
102065	F 48	*	?		0	O V	+	+	+	+	8-6-34	+	+	+	+	+	+	+	15th	15th	15th	0	11-	8-		5-15-36	Cured
99349	M 42	*	?		0	N V	+	+	+	+	1-23-35	+	+	+	+	+	+	10th	28th	28th	0	7-	8-		3-25-36	Cured	
J1438	F 46	1925	10	+	+	Stone	+	+	+	+	1-24-35	+	+	+	+	+	+	+	+	+	+	0	+	+		6-2-36	Not cured
66575	F 47	1923	8	+	+		+	+	+	+	7-1-31	+	+	+	+	+	+	23rd	23rd	23rd	0	3-	8-		0-27-34	Cured	
J14958	M 32	1928	8	0	0	N V	+	+	+	+	9-18-36	+	+	+	+	+	+	13th	12th	12th	0	3-	8-		10-3-36	Cured	

\* No history of typhoid fever

\* Five of these have already been reported in

carriers early. The importance of increased rigidity of requirement in the collection of release stool specimens is well exemplified in the increased percentage of chronic carriers following typhoid fever discovered in New York State in 1934 (3.9 per cent) as compared with 1929 (0.01 per cent). Once the typhoid carrier is detected, the problem resolves itself into the question of whether the carrier should be treated, or just controlled. If registered carriers are no longer a source of danger to the community as maintained by Frant, we cannot contend that they must be treated and cured of the carrier state in order to protect the community.

If treatment is advised, and I believe it should be advised, it must be urged as a measure intended to benefit the carrier primarily. Carriers, in general, should be acquainted with the fact that the carrier state is usually associated with disease of the gallbladder and liver, and that gallstones are present in most cases. Young carriers should be advised of the relatively small risk of operation at an early age as compared with operation after the age of 50, which carries such a high mortality.

In view of the fact that we have no conclusive proof of any type of nonoperative therapy relieving the typhoid carrier state other than in isolated instances we are compelled to recommend cholecystectomy to these individuals.

## Conclusions

1 The unrecognized typhoid carrier is the leading source of typhoid fever at present.

2 The carrier, once detected and properly instructed, is only rarely responsible for cases of typhoid fever.

3 Detection of hitherto unrecognized carriers is our great problem.

4 The treatment of the typhoid carrier should be preceded and followed by bacteriologic investigation and taking cultures of alkaline bile from the duodenum as well as cultures of feces to determine the presence of *B. typhosus*.

5 Reliable methods for diagnosis,

and several methods for treatment of bile typhoid carriers are available. Surgical treatment, consisting of removal of the gallbladder, is the treatment of choice.

6 Carriers should be informed of the fact that, in addition to being carriers, they probably have gallbladder disease and gallstones, and that this disease may be removed by operation, with resultant cure of the carrier state in most cases.

7 Seven out of 8 (88 per cent) of the typhoid carriers operated upon at the New York Post Graduate Hospital were cured of the carrier state following cholecystectomy without operative mortality. Nine additional carriers operated upon at other hospitals were also found to be cured. Our criteria of cure consisted of cultures of 3 consecutive negative duodenal specimens and 8 consecutive negative fecal specimens.

I wish to express my appreciation to Doctors Russell, Heyd, Peterson, and Lough for placing at my disposal the surgical and medical material used in this paper. The complete work-up of the cases presented is almost entirely the product of the untiring efforts of Dr. Carter, director of our gallbladder clinic, to whom I feel greatly indebted. Our bile cultures and cultures of operative specimens were performed under the direction of Dr. Adele Sheplar, of our department of bacteriology. I wish to thank Dr. Twiss for his many helpful suggestions in the preparation of my manuscript.

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## PLAN THAT TRIP NOW

There are doctors who boast that they have not had a vacation in many years. They say with satisfaction that they go home exhausted. Their families see them only at mealtime.

Each physician must make his decision in the matter, but it seems that those who decide that they are unable to cope with every medical problem, and that to round out their lives they must occupy part of their time in nonmedical pursuits, are the happiest members of the profession, remarks Dr R M Watkins in the *Bulletin* of the Cleveland Academy of Medicine.

Then they begin to take vacations, to restore not only the physical body but the mental clarity. They may travel, they may indulge long pent-up desires in devoting time to the arts, or to sciences other than medicine. They have more actual contact with their families, and help to train and educate more efficiently their children. Their changed outlook is reflected in their work with their patients. They are cooler in emergencies and clearer in thought when a diagnostic problem arises.

## EXAMINATIONS, AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The American Board of Obstetrics and Gynecology announces that at the recent examinations held by the Board at St. Louis, Missouri, on May 13, 14, 15, and 16, two hundred and fifty-nine candidates were examined. Two hundred and twenty-eight candidates were successful in the examinations and were certified by the Board, twenty-nine failed, and two examinations were not completed.

At the annual meeting of the Board, held in St. Louis on May 12, 1939, it was found necessary, on account of increased administration expenses, to increase the application and examination fees. Effective immediately, these are to be as follows: application fee \$15.00, payable upon submission of application for review by Board, examination fee \$85.00, payable upon notification to candidate of acceptance of the application and assignment for examination. Neither fee is returnable. This increase does not apply to candidates whose applications were filed prior to May 12, 1939.

The next written examination and review of case histories (Part I) for Group B candidates

will be held in various cities of the United States and Canada on Saturday, January 6, 1940, at 2:00 P.M. *The Board wishes to announce that it will hold only one Group B, Part I examination in this and subsequent years.* Candidates who successfully complete the Part I examinations proceed automatically to the Part II examinations held in June, 1940.

Applications for admission to Group B, Part I examinations must be on file in the secretary's office not later than October 4, 1939.

The general oral and pathologic examinations (Part II) for all candidates (Groups A and B) will be conducted by the entire Board, meeting in Atlantic City, N. J., on June 7, 8, and 9, 1940, immediately prior to the annual meeting of the American Medical Association to be held in New York City from June 10 to 14, inclusive.

Applications for admission to Group A, Part II examinations must be on file in the secretary's office not later than March 15, 1940.

For further information and application blanks, address Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh (6), Pennsylvania.

# INTUSSUSCEPTION

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THE opportunity for roentgenologic diagnosis of intussusception in adults is rather rare. For this reason the text books and most of the literature give slight consideration to x ray examination. Haggard and Floyd,<sup>1</sup> quote Waters as finding only 3 cases of the small intestinal type diagnosed preoperatively up to 1930, and only 6 additional cases since that time. In our review of the literature not more than 20 cases of all types were so diagnosed. Our purpose, therefore is to emphasize the importance of the roentgen ray in the diagnosis of intussusception in adults, to review the literature briefly to record and evaluate the diagnostic points, and to present several cases recently seen.

In 1913, Ladd<sup>2</sup> published the first x ray illustration of an intussusception in the literature. His cases were examined by George. The next year Lehman<sup>3</sup> reported a case in an 18 year-old patient who showed the typical 'pincer' deformity. Groedel,<sup>4</sup> in the same year, and Snow,<sup>5</sup> a year later, published less clear-cut cases. Other early writers were Altshul,<sup>6</sup> Wells,<sup>7</sup> Strauss,<sup>8</sup> and Kerley and LeWald.<sup>9</sup> The more complete articles are those of Ashbury,<sup>10</sup> Edburg,<sup>11</sup> Meda,<sup>12</sup> Castronovo,<sup>13</sup> Sussman,<sup>14</sup> and Davis and Parker.<sup>15</sup>

Intussusception is the invagination of one segment of the intestine into another.<sup>16</sup> This usually occurs distally although a few cases of retrograde invaginations have been reported.<sup>16 17 18</sup> The majority of intussusceptions are found in infancy and childhood. Unlike the symptoms in the younger age group, those in adults usually occur in a subacute or chronic form, the symptoms of the latter variety being present for fifteen days or more. The symptoms in adults are fre-

quently obscure and baffling. The more usual complaints are abdominal pain accompanied by nausea, and at times by vomiting, associated with varying degrees of constipation, and blood and mucus in the stool. Less frequently, the patient will discover an abdominal mass. The mass may shift in position during the examination, and at times totally disappear, the patient then experiencing an improvement of symptoms. The usual signs of intestinal obstruction may be present. In rare instances the protrusion of the intussusception by rectum has been recorded, and the involved portion of the gut has been passed as a necrotic mass. Fever may be slight. Because of the tendency for the invagination to reduce itself, the symptoms are usually intermittent.

**Etiology**—In one report, 30 per cent of cases were due to tumor.<sup>12</sup> Usually cases in children will show no associated lesion, or, if a tumor is present, it is frequently of the benign type. It is also more usual for a small intestinal type to be associated with a benign tumor. Generally, tumors are the most common cause of adult intussusceptions, and may be either benign or malignant. Other causes, roughly in the order of their frequency, are Meckel's diverticulum, adhesions, appendiceal pathology, mesenteric nodes, cecal tuberculosis, congenital defects, mobile cecum, and ulcerations from any cause. Even severe enteritis and purgation, lifting, and direct trauma may cause this condition.

**Classification**—There are three types (1) Enteric, where the small intestine alone is involved, (2) Colic, where the large bowel alone is the site of invagination, (3) A group occurring about the ileo-

cecal region, of which various ill-defined and relatively vaguely differentiated types are described, depending on which of the anatomic structures in this region is the apex of the intussusception.

Barium enema is the safer method of examination, although this is not without danger when dealing with severely involved intestine.<sup>46</sup> The enema is, of course, of no use in the enteric variety. It may be used with caution in the acute cases if not too great a delay is occasioned.<sup>31,32</sup> Sometimes the clyster may reduce the invagination, and it has been used in this way in children.<sup>11,19,33,34,35</sup> If this should happen in adults, one should always search for the cause of the intussusception.<sup>33</sup> If the examination is made during a remission of symptoms, nothing unusual may be noted, and the patient may be discharged as normal only to return later, possibly with a progression of the underlying pathology too far advanced for cure. In certain selected cases where the likelihood of precipitating an acute obstruction is remote, the barium may be given by mouth and serial films made.<sup>28,47</sup> The barium should be administered in small and often repeated amounts,<sup>35</sup> and at short intervals. In either case, the findings are essentially the same, and therefore will be discussed together.

The pathology of intussusception involves the presence of a mass within the bowel lumen, the invaginating loop, or intussusceptum. This intraluminal mass is the cause of varying degrees of ileus that may be present. The surrounding or ensheathing layer, the intussusciptens, is consequently distended. The mesentery of the intussusceptum usually shows some degree of traction, since it is carried along with the intussusceptum. The traction on the mesentery of the intussusceptum interferes with the blood supply of the involved loop. More or less vascular obstruction is therefore present, resulting in venous constriction, congestion of the bowel, and, in advanced cases, possibly gangrene. Two cases to be demonstrated here will show evidence of vascular changes in the intestine adjacent to the

intussusceptum. The presence of edema of the intestine, necrosis, and sloughing and adhesions may alter the x-ray appearance, should an examination be attempted in the later stages. A double mucosal layer is always present in intussusception, with the mucosal folds showing either a slight or a marked eccentric relation to each other. Therefore, if obstruction is incomplete, so as to allow the use of a barium suspension, a mucosal study should demonstrate the characteristic appearance associated with this double mucosal layer. Intermittency of an intussusception, or a tendency toward reduction, will result in a shifting or intermittent tumor mass, and also in more or less shortening of the involved bowel.

The different fluoroscopic and film patterns that may be noted are diagrammed in the article by Sussman, and were taken from Meda.

1 Complete obstruction with a maintained width of the intestinal lumen—the maintained width of the lumen being a significant finding.<sup>29</sup> The obstruction may be associated with a shifting mass as the enema is continued, leaving normal intestine distally with the width of the intestinal lumen well maintained. Occasional spontaneous reduction may result. The disappearance of the patient's symptoms with the reduction of the mass is suggestive of intussusception.

2 Slight seepage of barium about the intussusceptum will give a "cupola" or "pincer" type deformity. When the forked appearance at the point of obstruction is noted, it is pathognomonic of invagination if its edges are smooth. A central narrow barium column between the forked deformity, even if found alone, is suggestive, but may be confused with stenosed intestine from other causes. If filling of the entire colon and lower ileum has taken place, or if the barium has been given by mouth, a portion of the bowel may be absent. Related to this, there is a general shortening of the bowel and absence or displacement of intestinal landmarks. A high, blunt cecum, or one that is distended and into which a di-

lated terminal ileum appears to thrust, may occasionally be seen<sup>18 10 27</sup> The distention and eccentricity of the mucosal folds, and a linear central shadow of barium that has entered the intussusceptum with its axis parallel to that of the intestine may be seen

From inspection of the films in the literature, and from our own cases it seems to us that the most helpful diagnostic point in cases with incomplete obstruction, and the one most constantly seen, is distention and eccentricity of the mucosal folds in the involved portion of the intestine This is due to the double mucosal layer present in every intussusception, the barium being caught between the folds It is seen whether the mixture be given by mouth or by rectum Also, the careful examination of this sign should tell us something about the character of the involved intestine. If the mucosal folds are widely separated and the lumen considerably distended, if the folds are thickened, and if they change little in relation to each other on successive plates it is probable that severe changes are present—certainly edema and adhesions, and perhaps necrosis

This has been called a spiral deformity by Sussman and Golden, in Nelson's *Looseleaf Textbook* on diagnostic roentgenology, describes it as 'curved cross striations superimposed upon a defect. Friedman and Sava<sup>28</sup> show an excellent picture of this and call it mucosal fold distention with the folds in different axes. A "concertina" effect," ring outline,<sup>41</sup> and a ring outline with proximal dilatation,<sup>27</sup> have also been applied This spiral appearance with dilated eccentric mucosal folds in a lumen of normal or increased caliber is pathognomonic is the more constant and usual of the roentgen ray changes, and is always associated with an intraluminal defect. When one cannot make out a definite eccentricity of the mucosa it will be seen that there are usually more circular folds present than the degree of distention would warrant in a normal intestine.<sup>14</sup> The post evacuation film is the one to examine particularly for these changes since they

may be obscured by a mass of the clyster in the pre-evacuation film We have found that a film taken several hours after the usual postevacuation plate will best show the changes The interference with the blood supply will cause edema of the adjacent intestine In the ileocecal region this involves the lower ileum, and is demonstrated by marked coarsening of the circular mucosal folds in the involved area. This will be shown in several of the cases The small intestine, as mentioned, will also show some evidence of displacement.

*Differential Diagnosis*—A shifting tumor must be differentiated primarily from fecal masses Here again the presence or absence of a dilated intestine, changes in the mucosal structure, the lack of shortening or deformity of the intestinal loops and the presence of a central defect will make a differential diagnosis relatively simple Repeated enema examination after intestinal cleansing may be necessary

### Case Reports

L. S. #3701 65 years old watchman Italian Admitted to Coney Island Hospital on April 7 1937 complaining of epigastric pain and vomiting of two weeks duration No difficulty in swallowing No blood in stools bowels moved readily Considerable loss of strength and weight at this period No jaundice History otherwise negative

Physical examination showed evidence of arteriosclerosis bilateral inguinal hernia no abdominal masses

Wassermann negative

Gastric analysis no free hydrochloric acid total acidity—14 16 and 18 Positive blood test in gastric analysis No lactic acid

Urine showed one plus albumin, occasional casts

Temperature 99 to 100 F

X ray G I series shows metastatic malignant bone destruction in the pelvis Evidence of ileocecal intussusception, cross-striations of ileocecal region with defect and lower ileum displaced and shows coarsened mucosal markings

Barium enema showed a dilated cecum with a cross-striation of the mucosal folds and a central defect.

Patient died on April 16 1937

Autopsy Ca of prostate metastasis to lung



FIG 1 CASE 2

liver, bone, and adrenals, ileocecal intussusception due to benign small intestinal polyp, acute peritonitis

E L, #8083, 38 years old, machinist, married. Admitted to Long Island College Hospital on November 15, 1937, service of Dr J D'Albora.

Chief complaint abdominal pain of six months' duration, usually in the left lower quadrant, occurring several times weekly and associated with the passage of large amounts of gas. Some constipation, occasional diarrhea, pain, spasmodic cramps for past two years associated with watery stools, and a loss of 25 pounds of weight.

Temperature normal

Symptoms associated with a recent nervous upset—institution of Bedaux speed-up system in his factory

Past history negative

Two previous G I series at outside laboratories showed no pathologic changes

During the stay in the hospital, an evanescent mass was noted in the right lower quadrant several times. Remainder of work-up relatively normal, except for the x-ray examination

November 17, 1937—G I series done. No pathologic changes noted

On the 27th—Barium enema done. Evidence of ileocecal intussusception, cross-striations of ileocecal region, with cecal defect (Fig 1)

On the 24th—Small intestinal study. No evidence of intussusception

On the 26th—Cecal studies. intussusception

seen on a four-and-one-half-hour film examination

X-ray films two hours after an attack of R L Q pain associated with a mass in this region. No intussusception visible (Fig 2)

On the 20th—Gallbladder examination normal

On the 29th—Operation. terminal ileum enlarged and edematous, ileocecal intussusception present—irreducible because of adhesions, mass



FIG 2 CASE 2

found in lower ileum—Meckel's diverticulum, ileocecal resection performed by Dr R Barber

Postoperative course. no complications, patient discharged markedly improved

R M, #1730, 36 years old, female, married. Admitted to Long Island College Hospital by Dr A F R Andresen, complaining of attacks of mild lower abdominal pain of two years' duration, severe abdominal pain of two weeks' duration, and constipation with occasional blood and mucus in the stools for the past week. Patient had had some abdominal and pelvic distress following an abortion seven years before. Ten months before, patient had a nervous breakdown, and four months before, a similar condition. One week before had a stool which consisted chiefly of mucus and blood. Since that time, had severe abdominal pain, more on the left side. Pain was aggravated by bowel straining, was relieved shortly after evacuation, and was followed promptly by more pain. Stated to have had a fever of 100 to 101 F during this time

Past history irrelevant.

Remainder of the story is of no significance

Physical examination showed a tender palpable, hard mass in the left lower quadrant. There was also tenderness of the gallbladder region, and evidence of a left adnexal pelvic mass—either an old tubo-ovarian abscess the result of a septic abortion or possibly an ovarian cyst. Because of the patient's condition no operation was advised for this latter condition. In the hospital, patient had moderate tenesmus with passage of only bloody mucus. The left lower abdominal mass was palpable which may possibly have been in the bowel rather than a pelvic mass.

Patient received 400 cc. of blood transfusion  
Wassermann negative.

White blood cells 17 400—84 per cent polymorphonuclears

Sedimentation time 35 55, 70 minutes

Urine examination normal

Blood chemistry normal

G.I. series showed a delay in passage of the barium through the colon. Twenty-four hour film transverse colon and descending colon show gaseous dilatation. Seventy-two-hour film shows concentric and dilated mucosal folds in the upper descending colon. At this time a colon examination was requested.

Barium enema examination fluoroscopically the character of the transverse colon was seen to change sharply 10 cm. proximal to the splenic flexure because of the presence of gas or other nonopaque material in the colon at this point. Some tenderness over this area. Proximally the colon appeared normal. No evidence of constriction of the colon. With change in position nonopaque mass was seen to move nearer the splenic flexure, and the possibility that this was due to gas or nonopaque fecal material was therefore suspected.

Films taken at this time show no definite filling defect. Detail obscured in the distal half of the colon by gaseous dilatation. However at least one of the films shows some suggestion of dilatation of the mucosal folds near the splenic flexure.

Conclusion patient was advised to rest for one month and to return for pelvic operation.

Several weeks later patient notified her physician that she had had another attack of left abdominal pain with passage of blood and mucus and marked constipation.

Barium enema was requested

One barium enema showed a rounded intraluminal mass in the upper descending colon which, during fluoroscopy was seen to shift proximally several cm. into the distal transverse



FIG 3 CASE 3

colon just proximal to the splenic flexure (Fig 3)

Another barium enema examination made at an outside laboratory showed this intraluminal mass in the mid-descending colon with typical evidence of an intraluminal defect and dilatation of the mucosal folds in this region.

Diagnosis tumor splenic flexure of the distal transverse colon with intermittent intussusception.

The operation showed a pedunculated lipoma of the splenic flexure of the colon

B. M. 58 years old married female. Entered the x-ray department at the Long Island College Hospital for gastrointestinal series.

Past history hysterectomy nine years before. No other relevant findings.

Present complaint had had gastrointestinal symptoms relieved by food for many years. For the past three weeks had attacks of abdominal pain which came and disappeared suddenly and were relieved by a modified ulcer diet. No jaundice or clay-colored stools. Bowels moved regularly and were well formed.

Gastrointestinal series no gastric or duodenal pathology.

Enema examination of the colon showed evidence of a shifting mass in the ileocecal region which at times extended upward into the proximal ascending colon. Films show the mass to lie in the cecal region whereas during the early part of the fluoroscopic examination the mass was seen in the ascending colon.

Impression tumor colonic with intussusception. Case not proved as yet.

These cases were interesting because of their relatively obscure symptoms and



the relative difficulty at times in demonstrating the cause of the symptoms

In the first case, intussusception was a purely incidental finding, and one can but speculate as to how long it was present or how often it had recurred and spontaneously reduced itself. In the second case, two previous gastrointestinal series showed no ileocecal pathology, and only one of the examinations at the Long Island College Hospital definitely showed intussusception. In the third case, the story was relatively the same.

It must, therefore, be emphasized that the diagnosis is more readily made during the stage of symptomatology.

Pathology in the ileum is frequently not visible on the routine gastrointestinal series, and a mucosal study of this region, when indicated, can be as valuable a procedure as it is when applied to the stomach and the colon.

## Summary

The pathology and characteristic x-ray findings of intussusception are again described. Several cases are demonstrated to present the at times obscure clinical picture and the intermittent and characteristic x-ray appearance.

Four cases of intussusception have been seen in a relatively short time, that is, within a period of two years. Three of these cases were seen within a period of six months.

The x-ray findings of cases 2, 3, and 4 are being used through the courtesy of Dr A L L Bell, Director of the Radiological Department, Long Island College Hospital.

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## Discussion

Dr Bernard Ehrenpreis, Brooklyn, New York—The roentgen findings in intussusception, a chapter in the scant manifestation of obstruction, have here been most thoroughly and ably demonstrated and discussed by the essayist. There is practically nothing more to add. I should like, however, to present a few cases to fix the above-mentioned signs and make an attempt for the differential diagnosis of this condition from others resembling it.

With the increase of the intussusception, the intussusceptant part is shortened until it moves toward the center of the radix mesenterii. The acute differs from the chronic by the presence of the circulatory disturbances in the former, with its associated complications, such as edema, gangrene, and complete obstruction, in the latter the process is reversible.

In Ehnmark's 41 cases of intussusception while 25 were examined by roentgen rays only 7 showed typical signs. Examinations were performed by both opaque meal and enema. Barium enema (1) Barium hits the apex ending with a square cut or concave surface in an intestinal part of normal or dilated width with two stripes in oral direction corresponding to the distal part of the external sheath (Lehman Czepa Regner pincer sign). (2) If the head of the intussusception does not fill the intestine the outer sheath permits the barium to enter and being folded shows as a ring. (3) the intussusception can be seen as a lighter shadow. Spiral sign of Mead's polyp. (4) The inner intestinal layer can be filled only in exceptional cases when the apex is an intestinal tumor or if disinvagination has taken place and another intussusception occurred. In 5 cases the enema was able to disinvaginate.

After opaque meal. All signs have been mentioned except by two writers. (1) If the intussusception lies in the transverse colon the mesentery is shortened and may stretch the transverse mesocolon, thus causing delay in the evacuation of the descending part of the duodenum or by the size of its mass may press the duodenum thus preventing evacuation. (2) the aboral loops are dilated due to stenosis. (3) the dislocation caused by the shortening. (4) a beak like ending of the opaque column. (5) in some cases the intussusceptant does not fill or fills only to pencil thickness.

Otto Weller Pathology the wall of the cecum in the region of the appendix was thick and indurated. The appendix appeared to be subacutely inflamed and was adherent to the cecal wall. On invaginating the bowel a polyp which appeared to be coming from the lumen of the appendix and was about  $\frac{1}{2}$  cm in diameter and 3 cm long was visualized. The polyp did not appear malignant. There were no mesenteric glands. The liver was normal in size in appearance and to palpation. No glands were palpable in the pelvis or in the aorta.

Histology nonmalignant polyp arising from appendix.

Max Feder All. It was noted that the terminal ileum had intussuscepted into the cecum for a distance of about 8 cm. A tumor mass could be felt within the intussuscepted bowel.

Histology a regional node—lymphosarcoma of tumor itself—lost.

Ellen Hall Carcinoma of the cecum (pre and operative diagnosis)

Pathology scirrhous carcinoma about 4 cm in diameter was found in the cecum. The lumen of this portion of the bowel would admit the little finger. The small bowel and cecum were covered and attached to each other by numerous adhesions. The liver was felt and no metastases could be made out. No enlargements of the mesenteric glands were found. The right kidney had undergone complete cystic degeneration. In this case intussusception could have been suspected as in any constricting new growth.

## HOW IT LOOKS TO THE BUSINESS MAN

The Pittsburgh Chamber of Commerce developed the following resolution which was forwarded to the President of the United States and all members of Congress from Pennsylvania.

The Pittsburgh Chamber of Commerce, whose civic program on public health work has brought it into frequent contact with the medical profession and its various associations wishes to publicly express its confidence in the principles and the purposes of the American Medical Association and the various affiliated medical groups that have been charged with violation of the federal anti-trust laws.

'The Chamber of Commerce feels that organized medicine is not hostile to or active against, any adequate plan for bringing medical and hospital service to the public at reasonable cost. We cite in support of this stand the

current cooperation of the Allegheny County Medical Society with Pennsylvania's Public Assistance Plan for Care of the Indigent Sick, its acceptance of group hospitalization insurance and its proposal to consider insured medical service for certain low income groups.

This Chamber however stands with the Allegheny County Medical Society and other medical associations in opposing centralized government control through socialistic measures. We believe that such direction and control will prove extravagant and wasteful and is opposed to efficient service. It also tends to compete with current forms of medical practice and hospital service which are now under local and state sponsorship and is but another step toward un-American socialization of our accepted form of government.

# PERIPHERAL VASCULAR DISEASES

## Prognosis and Indications for Treatment

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(*From the Greenpoint Hospital and Israel Zion Hospital*)

THE outlook for the patient suffering from an impairment of the circulation in his limbs is dependent upon several factors first, the nature and cause of the obstruction, second, the degree of obstruction, third, the presence of complications, and fourth, the type of treatment and the cooperation of the patient

There are two fundamental conditions that can produce an impairment in arterial flow a functional vasospastic narrowing of the arterial lumen and organic changes in the artery (Table 1) It is important to remember that the disorder may arise from either one alone or a combination of both The clinical recognition of the role that each factor plays in the production of the final syndrome is made possible by various tests Such differential diagnosis plays a determining part in the selection of the form of therapy that should be instituted

The clinical criteria for establishing the presence of obliterative arterial disease are outside the scope of this paper The history and physical examination, however, go a long way toward establishing the basic cause of the obstruction We must mention in passing that peripheral circulatory impairment found in later life, especially in the presence of hypertension or diabetes, speaks for arteriosclerosis obliterans The visualization of calcified blood vessels by x-ray confirms the diagnosis This group comprises about 80 per cent of all cases of peripheral vascular disease. The wide variety of conditions that constitute the remainder are thus relatively rare by comparison It is a common error to confuse the cases of peripheral vascular sclerosis with thromboangitis obliterans or Buerger's disease Periph-

eral vascular sclerosis is a degenerative disease, noninflammatory in nature, and is associated with characteristic changes in the media and the intima The thickened intima that accompanies these changes encroaches upon the lumen and results in a pure mechanical obstruction to arterial flow The cases of endarteritis, of which thromboangitis obliterans is the most important, are inflammatory diseases of the vessels Thromboangitis obliterans occurs in the younger age group, usually in the second and third decade of life, seldom in the fourth, and is extremely rare after fifty It is characterized by an inflammatory reaction in the intima with thrombus formation, but extends through the media and into the adventitia The healing of the lesion is accompanied by scarring, with the resulting matting together of artery, vein, and nerve It is this scarring that produces an obliteration of the major pathways The involvement of the nerve in the scar is responsible for much of the pain in the extremities This disease also produces inflammatory lesions with thrombus formation in the veins When present in the superficial veins they are easily recognized The patchy recurrence of this lesion resulted in its being logically termed "migrating phlebitis" Such lesions are pathognomonic of thromboangitis obliterans when they are present in young males and accompany the faintest signs of arterial obstruction The disease is characterized by exacerbations and remissions Since the treatment of each stage is definitely different, it is important to recognize the active and the remittent forms

Vasospastic impairment in peripheral arterial flow is known as the Raynaud

*Read at the Annual Meeting of the Medical Society of the State of New York,  
New York City, May 11, 1938*

TABLE 1—CLASSIFICATION OF PERIPHERAL ARTERIAL DISEASES

1 Organic	2 Functional
<b>A. Inflammatory diseases</b> 1 Thromboangitis obliterans 2 Syphilis 3 Rheumatism 4 Tuberculosis 5 Pneumonia 6 Typhoid 7 Periarthritis nodosa  <b>B. Degenerative diseases</b> 1 Peripheral vascular sclerosis a. Diabetic b. Nondiabetic (1) Hypertensive (2) Senescent or decrepant  <b>C. Mechanical obstruction</b> 1 Thrombosis 2 Embolus 3 Trauma a. Wounds b. Accidental ligation of artery at operation 4 Polycythemia vera 5 External pressure as by tumors	<b>A. Vasoconstrictor (Raynaud phenomenon)</b> 1 Idiopathic or pure Raynaud's disease a. Acute b. Chronic 2 Sympatheticotonia 3 Traumatic disease a. Pneumatic hammer disease b. Miners hands c. Post trauma 4 Poisoning a. Ergot and its derivatives b. Arsenic 5 Frostbite and chilblain 6 Scleroderma 7 Arteritis  <b>B. Vasodilator</b> 1 Erythromelalgia or erythralgia 2 Acrocyanosis

phenomenon. Pure idiopathic Raynaud's disease is seldom observed. Functional peripheral vasospasm frequently accompanies sympatheticotonic states, as in "forme fruste" or autonomic imbalance. It is most common in young women before the age of 30. It may arise either from central sympathetic stimulation or the irritation of the sympathetic nerve endings in the vessel wall.

After the clinical diagnosis of peripheral arterial disease has been established, it becomes important to determine whether it is due to vasospastic stimulation or organic disease. If both are present the proportionate role of each element must be established.

One of the most valuable tests for this differential diagnosis is the Landis-Gibbon test. It is based upon the principle of the elevation in the surface temperature of the digits when vasomotor relaxation is produced. If the test is to be performed in the lower extremities, a reading of the skin temperature on the tips of the digits or the matrix of the nails is taken. The upper extremities are then immersed in hot water at 115 F for one half hour. A profound vasodilatation in the lower extremities is reflected by a rise in their surface temperature approximating that of the body temperature. Normally the temperature of the tips of the toes is about 80 F and when such reflex vasodilatation is induced it may rise to 96 F. A similar rise is obtained in Raynaud's

disease. Thus, when clinical impairment in circulation is accompanied by a normal Landis-Gibbon reaction, it is safe to assume that the disorder is the result of vasospastic disease.

In cases of organic obliterative disease it will be found that the immersion of the opposite extremities in hot water will be accompanied by either a partial rise or none at all. No elevation in skin temperature would be an indication that the phenomenon of arterial obstruction is due entirely to organic occlusion. On the other hand, an elevation of two or three degrees would indicate that although extensive organic disease is present, a potential vascular capacity is still available for which therapeutic procedures should prove of value (Fig 1, see page 1362).

This information can also be secured by a modification of the Landis-Gibbon test, which consists of the comparison of the temperature of the digits before and after paralysis of the vasospastic fibers by the injection of novocain into the posterior tibial nerve.

We should like to state at this point that one should not err in thinking that a vessel organically altered is capable of dilating in order to permit the passage of more blood. It is reasonable to see that the rigid, pipestem artery of a Mönckeberg sclerosis or the inflamed and scarred artery of thromboangitis obliterans has lost its normal elasticity and is unable to respond to demands for an increase in

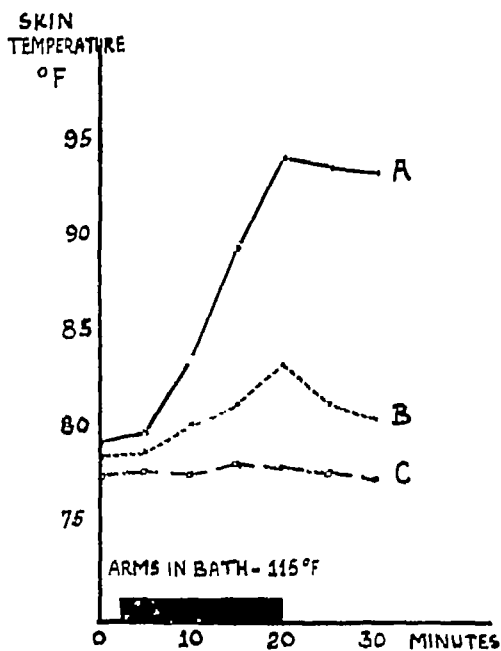


FIG 1 Landis-Gibbon Reaction A Normal B Organic obliterative arterial disease with some collateral vascular capacity C Organic obliterative arterial disease with no collateral vascular capacity

blood flow when such physiologic requirements arise. What then is the cause of the partial rise in surface temperature when vasomotor relaxation is induced? It is due to the collateral circulation. Nature provides the organism with a safe excess of vital tissue. Thus, physiologic function remains intact even after the anatomic destruction or removal of one-half of the liver, thyroid, or pancreas or the removal of one kidney or adrenal. This is likewise true with the peripheral circulation. When the major arterial pathways suddenly become occluded, a shunted circulation very promptly appears, whose function it is to assume the load of transporting the interrupted circulation and to preserve the integrity of the limb. It is accomplished by the rapid institution of the function of blood transport by profunda branches, which normally lie dormant and functionless. In such an emergency these vessels dilate and produce an anastomosis along the entire length of the limb distal to the obstruction. New arteries can even appear and grow under these conditions.

In experimental ligations of major arteries in dogs, the presence of a collateral circulation has been detected within twenty-four hours.

Thus the outlook in organic peripheral vascular disease depends quite largely upon the condition of the potential collateral arterial capacity. The reflex rise in surface temperature occurring in the Landis-Gibbon test is an index of the size of this collateral capacity.

Another excellent method for determining the presence and extent of the potential collateral capacity is by plethysmographic studies. Although unfortunately the procedure cannot be generally employed because of the complexity of the equipment and the difficulty of the determination, it offers one an opportunity to study the rate of arterial flow through a limb and to detect any increase that follows vasodilatation. In our plethysmographic studies we elevated the temperature of the deeper structures by means of the short wave in order to produce maximal vasodilatation. It will be of interest that any modality that elevates the temperature of the deeper structures is certainly the best therapeutic device we have available for producing vasodilatation and increasing blood flow. In the normal young adult we have been able to demonstrate that the distensibility of the arterial pathways is so great that releasing vasomotor tone practically doubles the rate of blood flow (Fig 2). We have also found that patients with organic occlusive arterial disease who show no increase in flow following attempts at vasodilatation, possess practically no potential collateral capacity. They are the cases in which conservative therapy is of no avail (Fig 3, see page 1364).

The most important complication in organic peripheral vascular disease is infection. Tissues subjected to nutritional disorders arising from a reduction in arterial flow became very vulnerable to invasion by pathogenic organisms. This is especially true in the diabetic. We have collected almost an equal number of cases of peripheral vascular sclero-

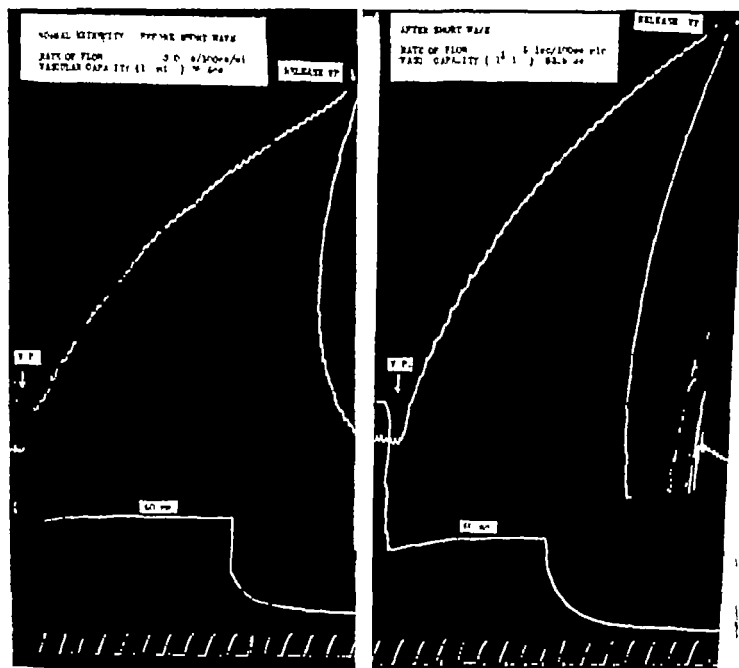


FIG. 2. Normal plethysmographic tracing showing marked increase in arterial flow following vaso-motor relaxation by short wave treatment

sis among nondiabetics as among diabetics. Yet the incidence of gangrene and infection was ten times as great in our diabetic group. It is our feeling that one of the features of the diabetic state is the existence of a poor resistance or immunity to infection. It has been clearly demonstrated that the diabetic is unable to develop immune bodies similar to the normal person. Following immunization of the diabetic with typhoid vaccine one is unable to demonstrate an amount of agglutinins in the blood equal to that in the nondiabetic. Infections in these devitalized tissues play a most important role in the eventual prognosis.

We should like at this point to call attention to the role of tobacco smoking as a determining factor in the prognosis. It

has been repeatedly demonstrated that tobacco is a very powerful vasospastic agent. Since these patients have a reduced factor of vascular safety and since the range of vascular capacity is relatively limited, every vasospastic agent is decidedly deleterious and seriously affects the final result of treatment. We feel that once the diagnosis of peripheral vascular disease is established, the physician must insist upon the patient's total and permanent abstinence from the use of tobacco. There is little doubt that smoking in even minimal quantities is capable of producing so much vasospasm as to vitiate the benefits of all conservative therapy. In our own practice we are so severe in these restrictions that patients are subjected to close daily scrutiny by

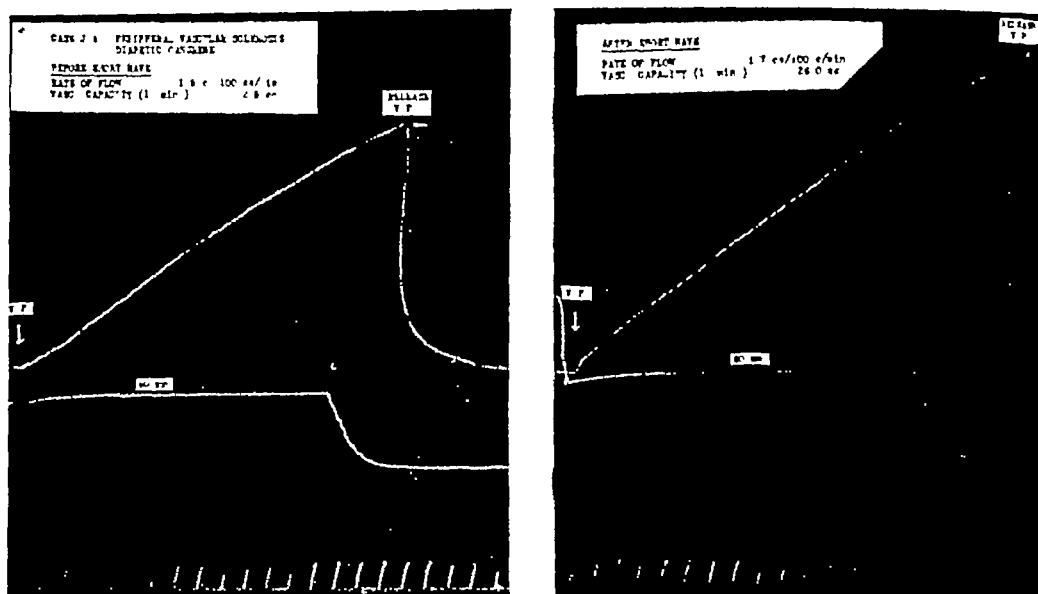


FIG 3 Case of peripheral vascular sclerosis with gangrene. Plethysmographic tracing shows no increase in rate of flow following attempted vasomotor relaxation with short wave. This indicated an absence of a collateral vascular capacity. Mid-thigh amputation performed.

having one of the physicians in attendance smell the patients' fingers and breath for tobacco. These patients are told that the infraction of this rule will result in relieving ourselves of any further responsibility in their care.

### Indications for Treatment

The large number and wide variety of procedures recommended for the treatment of peripheral vascular disease is seen in the accompanying table (Table 2). The selection of a method of treatment depends entirely upon the individual case under consideration. Certainly the treatment of the Raynaud phenomenon will be drastically different from the treatment of the case of peripheral vascular sclerosis with a gangrenous ulcer.

The basic principle in treatment is concerned with the creation of maximum states of active vasodilatation at the same time that all vasoconstrictor influences are eliminated. This, of course, represents the sole form of therapy for the Raynaud phenomenon. Although medical methods of vasodilatation can produce a total disappearance of the syndrome, sympathetic ganglionectomy

and ramisectomy are indicated as holding promise for a permanent cure.

The treatment of cases of organic occlusive disease presents a much more difficult problem. The management of the mechanical effects of circulatory impairment, whether due to thromboangitis obliterans or to peripheral vascular sclerosis, is essentially the same. The success of treatment and the ultimate outlook depends entirely upon how much of the obstruction is due to superimposed vasospasm and the size of the potential vascular bed. Little is to be hoped for if the impairment is totally on an organic basis. On the other hand, if a potential collateral capacity is still present and blood flow can be increased by the relaxation of vasomotor tone, then the use of every form of vasodilating therapy has a distinct value. Our experience has shown that there is no medical treatment that can equal the profound vasodilatation secured by the use of various physical methods. Among them are to be included warm baths, baking, diathermy, short-wave, infrared, paraffin baths, whirlpool baths, postural exercises, suction and pressure, intermittent venous occlusion, oscillating bed, and iontophoresis with

TABLE 2—SUMMARY OF METHODS FOR IMPROVING CIRCULATION

A. Medical	B. Physical	C. Surgical
<ol style="list-style-type: none"> <li>1 Bed rest</li> <li>2 Elimination of all spasm producing substances               <ol style="list-style-type: none"> <li>a. Tobacco</li> <li>b. Exposure to cold</li> <li>c. Ergot containing foods</li> <li>d. Ergot containing drugs (synergist)</li> </ol> </li> <li>3 The use of vasodilating drugs               <ol style="list-style-type: none"> <li>a. Acetylsalicylic acid</li> <li>b. Alcoholic beverages</li> <li>c. Papaverine</li> <li>d. Choline derivatives</li> <li>e. Theobromine and its derivatives</li> <li>f. Calcium and para-thormones</li> <li>g. Thyroid extract</li> <li>h. Intravenous injections of hypertonic solutions as sodium chloride or buffered sodium citrate</li> <li>i. Nonspecific protein therapy as typhoid vaccine</li> <li>j. Thymus extracts</li> <li>k. Local anesthetic in injections</li> <li>l. Subcutaneous injection of carbogen gas</li> <li>m. Sodium thiosulfate and iodides</li> <li>n. Neo-lopax intra-arterially</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>1 Heat by               <ol style="list-style-type: none"> <li>a. Baking</li> <li>b. Diathermy</li> <li>c. Short wave</li> <li>d. Baths                   <ol style="list-style-type: none"> <li>(1) Hydrotherapy                       <ol style="list-style-type: none"> <li>a. Whirlpool baths</li> <li>b. Contrast baths</li> </ol> </li> <li>(2) Paraffin baths</li> <li>(3) Mud baths</li> <li>(4) Medicated baths</li> </ol> </li> </ol> </li> <li>2 Massage</li> <li>3 Phototherapy               <ol style="list-style-type: none"> <li>a. Ultraviolet exposure</li> <li>b. Infrared therapy</li> </ol> </li> <li>4 X-ray therapy to lumbar spine</li> <li>5 Postural exercises</li> <li>6 Mercury baths</li> <li>7 Iontophoresis</li> <li>8 Hyperthermia</li> <li>9 Mechanical methods               <ol style="list-style-type: none"> <li>a. Section and pressure</li> <li>b. Intermittent venous occlusion</li> <li>c. Oscillating bed</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>1 Sympathetic ganglionectomy</li> <li>2 Sympathetic ramisection</li> <li>3 Periaarterial stripping</li> <li>4 Vein ligation</li> <li>5 Artery ligation</li> <li>6 Arterectomy</li> <li>7 Embolectomy</li> <li>8 Adrenalectomy</li> <li>9 Adrenal denervation</li> <li>10 Peripheral nerve section</li> <li>11 Paravertebral block</li> <li>12 Intraspinal alcohol injection</li> <li>13 Chordotomy</li> <li>14 Amputations</li> </ol>

vasodilating drugs. Medical methods may be employed to assist in the production of vasodilatation. The following drugs are of value: acetylsalicylic acid, thyroid extract, papaverine, acetylcholine, and alcoholic beverages.

We have already mentioned that thromboangitis obliterans exists in two stages, the active and remittent. Since the remittent form is characterized clinically by the manifestations of mechanical obstruction, all the above forms of vasodilator treatment are indicated. In the active form, however, it is necessary to stress the fact that the disease is accompanied by an increase in capillary permeability with a resulting tissue edema. This appears to be part of the picture of the acute inflammation that is also present in the arteries, arterioles and veins. Thus it is very obvious that the acute stage must be treated as an acute disease. The first and most important step is that the patient should be put to bed. It has already been demonstrated that the best therapeutic procedure for decreasing the permeability of these vessels and terminating the acute phase is through the use

of nonspecific shock therapy. This is accomplished by the intravenous injection of small quantities of typhoid vaccine every other day. Since the chill reaction is an undesirable effect with this form of therapy, it is advisable not to use more than five million bacilli in a dose. As soon as the acute phase has subsided, it is then possible to discontinue the use of typhoid therapy and treat the patient as a remittent case with the use of vasodilating methods.

The treatment of the diabetic with peripheral vascular disease presents a significant problem. Where an obstructed circulation is associated purely with functional symptoms, such as intermittent claudication and rest pain, then rest and vasodilating treatment should be given. When, however, an open lesion is present, one must be concerned with the protection of tissues against the invasion of pathogenic organisms, especially of the gas-producing types. This form of infection is almost always accompanied by rapidly spreading infectious thrombosis with destruction of tissue, lymphangitis, severe toxic states, and progressive anemia. We



have found in our experience that this type of acute, fulminating, wet, septic, gas-producing gangrene has not responded to any known method of treatment. As a matter of fact, we have found such acute invasive lesions in the presence of an adequate peripheral circulation. The measures to be recommended in order to stem the tide of this infection are the use of large doses of protosil and sulfanilamide, besides the application of dressings saturated with azochloramid. Frequent transfusions are also indicated. With it all, these treatments simply have the effect of temporarily localizing the lesion. Amputation should be performed in these cases as promptly as possible. If localization has been successful and an adequate vascularity warrants it, then the amputation may be performed below the knee. If, on the other hand, the infection has spread in spite of therapy, then a mid-thigh amputation must be done.

Open lesions in the form of indolent ulcers or chronic osteomyelitis involving the digits respond to vasodilator therapy when any potential collateral arterial capacity is present.

We must, however, express the warning that local treatment of lesions under these conditions should consist of the use of topical applications that have no irritating qualities, among which are boric acid solution, boric acid ointment, or peroxide. One should avoid applying any strong agents, such as iodine, phenol, or silver nitrate. We cannot emphasize too forcibly that mechanical manipulation must be avoided. The use of probes, the mechanical removal of gangrenous tissues or the mechanical expression of pus are frequently attended by thromboses in the marginal tissues with attendant rapidly spreading gangrene. Such tissues must be nursed with the utmost care and respect.

In conclusion, we must say that the outlook for the patient suffering from peripheral vascular disease is dependent upon a clearer understanding of the various conditions that comprise this large group of disorders and an adequate differential analysis of the form of therapy that is

individually suited for each group. Certainly the dictum of immediate mid-thigh amputation in every case of a lesion associated with obliterative arterial disease does no longer hold true. It appears to us that the future of these cases is becoming relatively brighter with advancing contributions outlined to improve collateral arterial flow and control infection.

123 Eighth Avenue  
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## Discussion

**Dr K. Harpuder, New York City**—Dr Collens has given us a very comprehensive and valuable review of our present diagnostic and therapeutic means in peripheral vascular disease. Of special interest appear to me his plethysmographic studies, which should be a great aid in understanding the problems of the peripheral circulation. It is to be regretted that it will be impossible to use plethysmography in practice.

In our experience, a combination of the usual clinical observations with oscillometric readings, the Landis-Gibbon test, and intradermal histamine injections supply fair information concerning the site and intensity of the disease, the collateral circulation, and the presence of arterial spasm. Such examination can be carried out without complicated instruments in the office as well as in the patient's home. The Landis-Gibbon and the histamine tests are fairly safe and reliable unless a neuritis complicates the peripheral vascular disease and interrupts reflex reactions of the circulation.

A drawback of all attempts to gage the peripheral blood flow lies in the fact that from the arterioles blood may enter the capillaries or may be shunted through arteriovenous anastomoses directly into venules. The latter part is lost for the tissues and their metabolic demands. The presence and significance of permanently patent arteriovenous anastomoses in cases of peripheral vascular disease has been proved by Popoff with histologic, and by us with biochemical, methods. The detrimental role of the peripheral short circuit of arterial blood can be very important and can be increased by certain therapeutic measures.

The first rule in treating peripheral vascular disease with physical means is not to do any harm. The efficiency of our therapeutic efforts is not so great as to allow any risks. I agree fully with Dr Collens in considering the use of irritating solutions as dangerous. In my experience the direct application of heat and especially of deep heat is frequently detrimental in advanced cases of peripheral vascular disease. I

want to emphasize the dangers of electric burns in carrying out iontophoresis in cases of peripheral vascular disease with neuritis and sensory disturbances. A careful technic can easily avoid such accidents.

It would take hours to discuss the probable values of the many therapeutic procedures mentioned by Dr. Collens. We obtain some satisfaction by arranging our therapeutic plan after the results of the diagnostic work up after observing the influence of direct heat, reflex heat, histamine, and the like. In some advanced cases with insufficient reactions to the above agents we are still able to produce active hyperemia with a carbon dioxide bath and use such baths with some beneficial results for therapeutic purposes. Passive vascular exercise has not given us results to make it a preferential treatment. With intermittent venous obstruction we recently obtained very good effects in ulcers of vascular origin.

In concluding this brief discussion I wish to thank Dr. Collens and Dr. Wilensky for their valuable paper and to congratulate them on their excellent work.

Dr. Anna Samuelson, *New York City*—I wish to congratulate Dr. Collens and Dr. Wilensky on their splendid paper. Referring to the predominant 80 per cent of the cases, peripheral vascular disease is a local manifestation of a generalized arteriosclerosis. There should be a coordination between the physical therapist, surgeon, and internist in the proper treatment of peripheral vascular disease.

Clinical and experimental studies were conducted on the human and rabbit at the Morristown City Hospital in cardiovascular arteriosclerosis for the past five years. Pancreatic tissue extract is offered as an adjunct to physical means in the treatment of peripheral vascular disease. However its proper standardization and purification must be achieved.

Patients report slightly increased ability to walk, less pronounced intermittent claudication, diminution of precordial pain on effort, night cramps, rest pains, tingling, burning sensations at end of fingers and toes, and freedom from attacks of angina pectoris for days and weeks where formerly they occurred several times a day. Objectively there is no change in the electrocardiogram; there is an occasional small increase in the oscillometric reading.

Purifying the tissue extract, the following effects were noticeable: heart block could be induced almost instantaneously in the mouse by intraperitoneal injection of purified product, whereas commercially available tissue extract in similar dosage was ineffective. Heart block was

induced in rabbits by intravenous injection, whereas no heart block could be demonstrable by ordinary available tissue extract.

Tissue extract properly standardized and purified is offered as an adjunct to the physical means of treating peripheral vascular disease. I wish to congratulate again Dr. Collens and Dr. Wilensky on their splendid paper.

Dr. Nathan D. Wilensky, *Brooklyn, New York*—Among the physical methods of treatment in use I should like to describe briefly intermittent venous occlusion. This procedure Dr. Collens and I reported a few years ago. It is based upon definite physiologic laws and is outlined to apply the observations of August Bier and Sir Thomas Lewis.

When a pneumatic cuff is applied to the proximal portion of an extremity and inflated to a level sufficient to compress the veins, venous congestion will occur. This you will readily recognize to be Bier congestive hyperemia. Lewis observed that after the release of the venous congestion a state of reactive hyperemia develops. It has been found that in the normal the increase in rate of flow during reactive hyperemia will be as great as 600 per cent.

In applying these principles we devised an apparatus for automatically producing alternating periods of venous compression and release of compression. This had the effect of producing alternating states of active and reactive hyperemia.

This method has proved effective in the relief of rest pain, improvement in intermittent claudication, and the healing of chronic superficial gangrene. It is not to be employed in cases of acute infectious fulminating gangrene.

Dr. William S. Collens, *Brooklyn*—I wish to thank Dr. Harpuder for his very kind remarks. Although the Pickering test offers much information regarding the vascularity of an extremity we do not employ it in the examination of our patients. The test is based upon the principle of the development of reactive hyperemia following the release of arterial compression. We feel that it is dangerous to compress a diseased artery and interrupt even temporarily a circulation that is already impaired. Since other methods are available that can furnish as much information as the Pickering test, it does not appear necessary to jeopardize the vascularity of the patient for any diagnostic procedure.

Dr. Samuelson has presented some very interesting data indicating the value of tissue extract in the treatment of arteriosclerosis obliterans. Although she is able to demonstrate athero-

matous changes in the abdominal aorta of rabbits and a high blood cholesterol after experimental cholesterol feedings, and although she is also able to prevent these conditions by the use of pancreatic tissue extracts, I question the comparable nature of these experimental conditions to true arteriosclerosis. There has not been sufficiently adequate proof to indicate that human arteriosclerosis is a disease associated with disturbances in cholesterol metabolism. On the other hand, Winternitz demonstrated fairly conclusively that human arteriosclerosis is a condition characterized by the development of a hemorrhage in the vasa vasorum which is fol-

lowed by a train of events that include absorption of the hemorrhage, fatty degeneration, subsequent fibrosis, and calcification. If profound organic changes represent the healing or scarred stage of a reaction to a primary hemorrhage in the wall of the vessel, how can any method of treatment be expected to influence such organic alteration? So far as I can understand it, the only thing we can hope for is to secure a therapeutic effect from functional vasodilatation of the collateral circulation. I cannot see how any method of treatment can hope to recreate the normal anatomic picture of an arterial wall that has become scarred.

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#### TEN GOLDEN RULES OF THE CANCER EXAMINATION

- 1 Examine the lips, tongue, cheeks, tonsils, and pharynx for persistent ulcerations, the larynx for hoarseness, and the lungs for persistent cough
- 2 Examine the skin of the face, body, and extremities for scaly, bleeding warts, black moles, and unhealed scars
- 3 Examine every woman's breast for lumps or bleeding nipples
- 4 Examine the subcutaneous tissues for lumps on the arms, legs, or body
- 5 Investigate any symptoms of persistent indigestion or difficulty in swallowing. Palpate the abdomen
- 6 Examine the lymphode system for enlarge-

ment of the nodes of the neck, axilla, or groin

- 7 Examine the uterus for enlargement, lacerations, bleeding, or new growth. Make a bimanual examination to determine the condition of the ovaries
- 8 Examine the rectum, and determine the cause of any bleeding or pain
- 9 Examine the urine microscopically for blood
- 10 Examine the bones and roentgenograph any bone that is the seat of a boring pain, worse at night

—Frank E. Adair, M.D., American Society for the Control of Cancer

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#### FOREIGN MEDICAL EDUCATION FOUND INFERIOR

Pointing out that persons receiving their medical education in approved schools of the United States are more successful before medical examining boards of this country than those educated abroad, the *J.A.M.A.* for April 29 says editorially:

Failures of candidates from abroad are tabulated as follows: Austria, 136 examined, 28.7 per cent failed; France, 43 examined, 37.2 per cent failed; Germany, 505 examined, 41 per cent failed; Italy, 165 examined, 53.9 per cent failed; Scotland, 76 examined, 17.1 per cent failed; Switzerland, 172 examined, 32.6 per cent failed. The total number examined

from these countries was 1,097 and the average percentage of failures was 38.3.

"Since the number of failures among graduates of approved schools in the United States was only 11.7 per cent," the editorial continues, "it is obvious that candidates admitted to state board examinations on the basis of foreign credentials are not as well prepared for the licensing test as those who have been educated in our own schools. It may be objected that the poor record of graduates of foreign schools is due to the fact that they have not yet mastered the English language. This explanation, however, can account only partially for the discrepancy, since many of those educated abroad were born and reared in this country."

## HEAD INJURIES

JOSEPH E J KING, M D , New York City

THE increase in the number of head injuries, relative and actual, during the last three or four decades is appalling. Using Munro's expression, the doctor almost everywhere may have such cases literally placed on his doorstep, due in large part to the automobile. The surgeon in every locality should be conversant with a proper method of management, owing to the increasing number of cases for which he must care.

Considering the wide experience gained during the World War, the great number of cases under care during the last two decades, and the numerous and splendid papers by surgeons, neurosurgeons, neurologists, and others, it would seem that this information would have become more widely spread, and that more patients would have been saved by some fairly well understood method of management, which would exclude the "laissez faire" "doing-of foolish-things and 'operating upon-everything" groups.

In a paper of this scope, which is so limited by time, the various types of injuries must necessarily be considered briefly, and those injuries involving the upper and lower jaws obviously should be excluded.

On a quick and superficial inspection of the patient who has sustained a head injury by one who is accustomed to seeing a number of these cases, one can fairly accurately place the patient in one of three categories. Firstly, recovery should take place with but little treatment or with the proper treatment, secondly, the outcome is very questionable, thirdly, the patient will most likely die.

All writers and doctors who think, agree that the first consideration is to combat and overcome shock, should it exist. If a hospital is nearby, naturally the patient should be removed to a hospital,

but with care and with the thought of a possible coexisting fracture dislocation of the cervical spine. Most everyone understands how to treat shock, but it is surprising to see the number of cases in shock with the head of the patient elevated for the reasons that a head injury has been sustained and that "the head should be raised." This position is not only irrational on account of shock, but it is also conducive to insufflation of saliva, blood, and vomitus. I prefer placing the patient who is in shock or coma on his side with the head down, regardless of the skull and brain damage.

Moving the patient for the purpose of removal of clothing, making radiographic films, etc., is mentioned only to be condemned. If actual bleeding exists, this should be controlled by skin clips and a sterile gauze dressing. The vast majority of cases should not come to operation of any kind. In the treatment of this large group, one's management of the case should be based on common sense and common knowledge, without introduction of firm hidebound preconceived notions, "isms," and theories. Even the most superficial reading of autopsy and operative findings, coupled with one's own experience, will reveal the possibility of multiple lesions involving the brain and skull as a result of trauma. One cannot see the actual extent of the damage, therefore one cannot know *exactly* how best to treat it in every case.

Any kind of trauma to the skull that renders a patient unconscious for several minutes or longer surely must shake up the brain considerably, even though it may not actually be lacerated. It is logical to assume that there is more or less edema of the brain, and that the patient's condition would be improved by lessen

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*Read at the Annual Meeting of the Medical Society of the State of New York  
New York City May 12, 1938*

ing the edema With this assumption all agree Most writers also agree that dehydration should be instituted in the majority of cases for this reason, that a hypertonic sugar solution (preferably sucrose, 50 to 100 cc of 50 per cent solution) should be administered intravenously, and that a concentrated solution of magnesium sulfate should be instilled into the rectum and retained for about fifteen minutes It is also common knowledge and understanding that this form of dehydration is to be repeated every three or four hours, six to eight hours, or at longer intervals, and even for several days, provided the patient is unable to swallow, otherwise a saline cathartic should be administered by mouth

There is marked difference of opinion regarding the use of lumbar puncture Some writers are in favor of repeated, and at times fairly frequent, lumbar puncture Some condemn lumbar puncture firmly and vociferously to the point where it is *never* allowed, while most surgeons and neurologists occupy a middle ground and feel that there is a time and place for its use Mind you, with but few exceptions all favor dehydration, and about the same degree and the same method of dehydration

Both opponents and proponents have deaths occur without being able to state the causative factors, and there probably is but little difference in the mortality rate of the two groups, provided all cases are honestly reported in the same manner (i e, any and all cases admitted into any part of a hospital, except the morgue) and provided they are treated on a neurosurgical service of a municipal hospital, or one whose ward services are comparable, leaving out private clinics

Lumbar puncture is of value at times in decreasing intracranial pressure, in lessening edema, in increasing the intracranial blood supply for the good of damaged structures, and in the removal of irritating blood elements—plasma and cells There is no doubt that fatalities have followed lumbar punctures due to

jamming of the conus and medullary compression in some cases of head trauma, just as has been observed in cases of marked increase of intracranial pressure resulting from sub- or pre-tentorial tumors

I prefer that lumbar puncture—when done for therapeutic purposes—should be done about one or one and one-half hours after intravenous administration of 50 to 100 cc of 50 per cent sucrose solution There can be no absolutism in a group of cases that shows such variety of unknown brain damages, and one must remember that there are various roads to and from Rome It seems that there must be a considerable injection of egoism for one to claim perfect knowledge of an existing condition about which it is impossible to have positive knowledge

I shall not become entangled in the controversial subject regarding the relationship of manometric reading of cerebrospinal fluid pressure, pulse rate, blood pressure, etc, about which so much is written and so little is known

With unconscious and comatose patients one should try to prevent hypostatic and lobular pneumonia by turning the patient from one side to the other, feeding through a nasal tube into the stomach, bronchial aspirations, etc Blood volume should be restored with small transfusions of 150 cc to 250 cc, repeated if necessary

Most of these patients will live Some may become worse while the treatment is being carried out, in which case increasing hemorrhage, sub- or extradural hematoma, or subdural accumulation of cerebrospinal fluid with medullary compression must be suspected and relieved, if possible, through a burr hole While this burr hole, as an exploratory procedure, is advocated, I doubt seriously if a typical subtemporal decompression, performed purely as such, has prevented many deaths

In a recent personal communication from Claude Coleman,<sup>8</sup> he said "I really believe that it is possible now to treat head injuries in a sort of rational way One thing we do know about them

is that a large number of the fatal cases do not have any rise of intracranial pressure. This leads to the belief that fatality is due more to injury of the important structures than to any other cause. If this be true, of course treatment by spinal puncture and dehydrating solutions is unnecessary in many of the bad cases. As I see it now, surgery has two indications—prevention of infection and removal of clots, with a very rare indication for relief of edema of the brain. In the past most writers stressed pressure as the cause of death, and practically the only cause of death. Just why some brains with trauma swell and some do not, I do not know, but certainly, many of the serious cases not only do not have increased pressure, but have a condensed brain." I think he is right.

### Lacerations of Scalp

Lacerations of the scalp not associated with fracture should be débrided and sutured preferably within ten hours the sooner the better, provided the patient's general condition permits. The procedure should be done in the operating room with good light, proper facilities and with the scalp well shaved. It should not be done in a hut-or-miss manner in the dressing room or office otherwise a depressed fracture line containing incarcerated hairs or other foreign bodies might elude discovery and be followed by sepsis. This is also advised so as to prevent the massive dissecting, suppurative cellulitis too often seen. Severely traumatized scalp edges and portions of scalp flaps should be excised together with the damaged galea and pericranium. By extension of the wound, or counterincisions, the defect in the scalp in most cases can be closed. The scalp incision or incisions should be loosely closed with a few vertical mattress sutures (Stewart), with a Dakin tube size rubber drain one half inch long and with a lateral eyelet sutured in either angle of the wound barely going through the scalp, so placed that it will not come in contact with bone surface or margin. These are removed in forty

eight hours. During débridement the wound is sponged with Dakin solution sponges and a wet dakinized gauze dressing is applied and changed daily, with out tight bandaging, until the wound is healed. One can determine then whether a suture should be removed here and there, and whether the wound should be gaped to allow escape of fluid accumulation.

In cases of partial avulsion, where dirt and grit have been ground into the outer table of the skull, the débris should be scrubbed off with a stiff brush, or gently scraped off with a curet, washed away, and removed by suction. The scalp should be sutured quite loosely with ample provision for escape of serum, which otherwise collects.

It may seem puerile to discuss the above points, but it is a sad situation to see a patient remain in the hospital for many days, or even lose his life as the result of inattention to such simple and apparent details.

In complete avulsion of a portion of the scalp, the scalp edges should be excised gradually in a circumferential manner, bleeding from the margins controlled with skin clips as excision is carried out, and the entire area grafted with Thiersch grafts. All of these things can be done with local anesthetic solution made from novocain and suprarenin tablets (tablet A).

Lacerated scalp wounds not sutured within forty-eight hours should probably be cleaned by shaving, removal of foreign bodies and packing the wound loosely with gauze wet in Dakin solution, with a copious wet Dakin gauze dressing. Careful and frequent dressings with loose bandage prevent an otherwise serious infection of the scalp. If a circular tight bandage is applied, the scalp above the circular bandage becomes very edematous, thus favoring extension of infection.

### Compound Fractures of the Skull

Although the fracture may be, and probably is of much less importance than brain damage in the vast majority of head



injuries, it does not behoove one to ignore the fracture site or to deal with it in a cursory manner as has been so frequently observed

For convenience in considering this group it may be divided into the following subheadings

1 *Depressed comminuted fractures of the vault*

A Cases in which the head and body are not moving and the blow is apical at one point—e g , hammer, scissors, knife, pointed instruments of any kind, falling stones, metals, etc ,—frequently recover early from shock Therefore, earlier operation usually can be carried out When seen, many of these cases are wide-awake and otherwise in good condition, with the possible exceptions of external loss of blood, focal weakness of an extremity, etc This may be due to the fact that the fracture is depressed sufficiently to lacerate the dura and pia-arachnoid, to establish automatic decompression by leakage of cerebrospinal fluid and blood which otherwise would accumulate, and also to the fact that there is seldom contrecoup disturbance, wide radiating fractures, or gross damage to the important basilar structures A very slight degree of dehydration may be necessary, the more important indications being restoration of blood volume and early, thorough débridement

B Cases in which the head and body are in the process of being rapidly transported by automobile, train, aeroplane, or by falling, may as a group present a much more serious picture, and the operation, although one may prefer to do it sooner, may have to be deferred In these cases anything may have happened There may be other fractures and gross damage to parts of the brain other than the area just beneath the compounded portion of the skull by contrecoup or other forces Serious body and visceral damages are more likely to be associated Be this as it may, with regard to time the operative procedure and technic are identical and should be carried out in a thorough, definite manner It should be done under local anesthesia, with the

scalp well shaved so as not to be "cramped" in the operative field

Three-limbed incisions (like cutting a pie into three equal parts) or wide Y shaped incisions give the quickest and most adequate exposure The scalp edges and grossly damaged scalp margins should be cut away, leaving perpendicular, clean scalp margins along the flaps with the damaged cut-away edges attached to the underlying injured structures The scalp flaps are then reflected and held with three small-sized self-retaining retractors (Wertlaner), which maintain adequate exposure and prevent bleeding from the scalp edges Seldom will it be necessary to use artery clamps or skin clips The galea and pericranium should be preserved so far as is logical, but incomplete removal of these structures is not justifiable should they be badly injured, otherwise infection is favored Adjacent blood clots beneath the scalp are then removed and the inner incised margin of galea and pericranium to be removed are rolled centrally toward the fracture site to give exposure of the outer table of the skull Two, three, or more burr holes are made, situated beyond the fracture site, and the holes are connected with either a Gigli saw, deVilbiss forceps, or motor osteotome The whole mosaic of damaged structures, excluding the dura and brain, is removed en masse, carrying with it the major portion of infected or potentially infected material

The dura, if not torn, should not be opened unless a subdural hematoma or nonpulsating dura are seen An intact dura is usually a good friend From this point until closure is effected, the operative field is sponged out with dakinized gauze sponges The explosive action of free chlorine solution with liberation of free chlorine certainly mitigates against the "floating" bacteria present in the wound and most surely does not damage the dura It has been used too many times Should the dura be torn and x-ray films show bone fragments or other foreign bodies in the brain substance, the dural margins should be excised and the foreign

bodies removed, provided removal does not jeopardize the patient's welfare. It is well known that retained foreign bodies favor sepsis and abscess formation. At the same time, grossly lacerated, pulpified brain substance and blood clots are removed by suction. During this time saline will be helpful at times, but it should not be used if the wound is connected with the ventricle or if there is a tendency for it to run and spread into the subdural space. Once the dura is opened, the incision in it should be enlarged if necessary to give adequate room for removal of the substances described above. A slightly larger dural opening is probably no worse than a smaller one, and certainly allows better access to the severely injured brain. The dura should be closed if possible. It may be necessary to make nicks in the dura, or even small counter incisions to effect closure.

A clear-cut bony defect now remains to be covered with the scalp flaps. Very little tension should be permitted. Sufficient relaxation of the flaps can be obtained by further extension of the incisions and mobilization of the flaps, should this be necessary. I prefer bringing the scalp edges together rather loosely with vertical mattress sutures (Stewart) of silk, with finer approximation by superficial sutures. A one half inch long rubber drain, as in lacerated wounds of the scalp, is sutured in either angle of the incision to be removed in forty-eight hours. The drains should barely pass beneath the scalp so as to allow escape of ooze. They should not be placed far beneath the scalp nor in contact with the bony surface or margin. No packing should be placed through the dura.

Some surgeons prefer tight closure of the scalp incisions, with two layers of interrupted silk sutures. I have found that one layer of sutures brings and holds the edges together and controls bleeding from the scalp edges. Therefore, all requirements are met. It takes less time, and one avoids leaving non-absorbable silk sutures in the galea in a potentially infected wound. A small,

wadded, fluffed piece of gauze should be placed over the central part of the defect, and a slightly compressing, nonskid dressing should be applied that will squeeze the ooze from between the under surface of the scalp and the dura in the bowl-like cranial defect, thus obliterating dead space.

I prefer this method in every instance if possible. However, when there are fracture lines radiating from the central skull window, with possibly larger pieces of slightly mobile areas of skull extending some distance from the actual comminuted depressed portion, but firmly covered with pericranium, and when the depressed fragments are over one of the major sinuses, then it may be advisable to excise the damaged soft parts and remove the fragments piecemeal from within outward. The amount of sacrificed bone may be less, and one can better prevent or combat severe hemorrhage from the sinus.

If the mosaic of bone fragments is suitable, it should be preserved, and after an interval of about a year or more this mosaic can be smoothed out and replaced in position. Otherwise the defect can be repaired with a piece of skull from the morgue, or a periosteal-osseous tibial graft, or a piece of celluloid. Although the fragments might be replaced immediately, I feel that it might be "playing with fire" to do so, and taking an unjustifiable risk. In these types of fracture one is interested not only in the immediate preservation of life, but also in prevention of gross brain scars, infection, severe sepsis, and abscess formation and it is believed that immediate reinsertion of bone fragments favors the possibility of development of one of these conditions.

## 2 *Fissured fractures of the base*

Should pneumocephalus occur and increase, with leakage of cerebrospinal fluid following fissured fractures of the anterior fossa, or any fracture of the frontoethmoid region without meningitis, a small frontal flap should be made and the tear in the dura sutured after removal of the air according to the method of

Claude Coleman It goes without saying that no attempt should be made to clean, wash out, or pack the nasal cavities or external auditory canal, for "cleaning" is impossible, and attempts to do this would increase the danger of spreading infection. Fractures through the paranasal sinuses are serious on account of the likelihood of development of meningitis or abscess formation.

### 3 Compound fissured fractures of the vault

I doubt if skull resection should be done except in the instance of gross debris, dirt, or foreign bodies in the fracture line, leakage of cerebrospinal fluid through the fracture line, or where the fracture line or lines pass through the mastoid process.

### Simple Depressed Fracture

Within a few hours to several days after the injury the depressed portion of the skull should be elevated and in most instances the fragments returned to their proper position, except in certain cases occurring in infants, or where the depressed portion involves the mastoid process. In the former, operation may not be required, and in the latter, the bone fragments should be discarded. Where the depressed portion of bone and fracture lines involves the mastoid, the mastoid is very likely to become infected, with extension of infection to the mosaic of bone fragments, with formation of either extradural or subcortical abscess, or both.

Extensive brain scars, many of which are conical in shape, with the base against the dura, will form more likely beneath depressed fractures of long standing than in cases in which the depression is relieved early. It is also believed that epileptiform convulsions, complaints of dizziness, headache, etc., are relatively more frequent in cases of unrelieved depressed fractures than in those in which the depression is relieved.

### Extradural Hematomata

This is one phase of the subject of head injuries on which all agree in regard

to the treatment, which is evacuation of the blood through a single burr hole with control of the source of bleeding. This is easily done if the condition is recognized. The picture, when it exists, is classic. The classic picture, however, is not always present. It may be stimulated by a subdural collection of cerebrospinal fluid which escaped through a tear in the pia-arachnoid, as has been seen not infrequently by all neurologic surgeons and emphasized many times by some, especially Sachs<sup>27</sup> and Naffziger<sup>28</sup>. The diagnosis may not be made at all. It is surprising to note the high percentage of extradural hematoma in Vance's<sup>41</sup> report of autopsy findings. Although a number of these cases were never under medical observation, no doubt quite a few went unrecognized. In some cases return of consciousness from a deep comatose condition with uneventful recovery following evacuation of the blood through the burr hole is very dramatic. A comatose patient, operated upon with but little local, or no anesthesia, may almost suddenly wake up on the table and have to be restrained, and more local anesthetic solution may have to be injected for closure. Unfortunately, this is not always so. Where medullary compression has existed for some time and to a marked degree, death will likely result although the hematoma is removed. Therefore, if possible, this condition should be recognized and dealt with forthwith.

### Subdural Hematomata

For convenience of discussion and treatment, these hematomata can be classified as *acute* and *chronic* in the full knowledge that one cannot say how old the lesion must be before it is chronic. Common sense would tell one that the hematoma, in order to become chronic, must have been acute in the beginning; nevertheless, the differentiation can be used in determining what to do for the patient.

The mere fact that so many chronic lesions have been found and operated upon indicates that the diagnosis at

times is difficult to make. Were the condition easy to diagnose there would be no chronic cases to consider.

*Acute*—I know of no definite and positive preoperative way of making the diagnosis. However, given a case of head trauma with or without fracture, in which the patient is rendered unconscious and remains so, or is "in and out" of consciousness, and does not respond to the routine dehydration and lumbar punctures etc., one can at least strongly suspect the presence of a subdural hematoma. Foster Kennedy and Herman Wortis<sup>21</sup> in their study of 72 cases found that the majority of cases showed the following: inequality of pupils, the dilated pupil being on the side of the lesion in the ratio of 30 to 12, hemiparesis or hemiplegia—equally divided, 20 to 20 with respect to the side of the lesion, coma or stupor—in and out type, stiff neck from blood in the spinal fluid, incontinence of feces and urine, and other less constant signs and symptoms. Forty nine cases were seen on the Neurological Service of Bellevue Hospital and 40 were accurately diagnosed. Many of the acute lesions are produced by violent force as contrasted with the benign forgotten, or unknown accident, accounting for the chronic form. Therefore, multiple brain lesions may be present, manifesting various signs and symptoms. The lesion is frequently bilateral.

It is advised that a burr hole be made first on the side of the dilated pupil, should it be present. If a hematoma is found it is removed by suction and washing. Should none be found beneath the burr hole, the opening in the bone and dura should be enlarged sufficiently to allow introduction of a small brain spoon which should be passed beneath the dura in all directions in search of the hematoma. No doubt everyone has had the experience of just missing a hematoma by placing a burr hole three quarters of an inch or more beyond the limits of the clot, and to one's chagrin and disappointment, this fact is established at autopsy.

If no hematoma is found, a burr hole

is then made on the opposite side in the expectation of locating and removing the clot. Instead of finding a blood clot, one may be able to evacuate a large collection of subdural fluid that escaped from a tear in the pia arachnoid. If no collection of blood or cerebrospinal fluid is found, the burr hole should then be utilized for the purpose of ventricular puncture with air study, if desired.

*Chronic*—The insidiousness associated with this condition is well known. Although one is more alert now than heretofore to suspect the presence of this lesion, the patient is quite likely to be considered a tumor suspect on neurologic and neurosurgical services, and the diagnosis may not be established until a burr hole is made for ventricular study. At this time the familiar bluish appearance of the dura may be seen, a hematoma located and removed, or the ventriculograms may show a marked shift to one side with homolateral depression of the ventricle or distortion, which would indicate exploration. In this manner the true nature of the lesion is determined.

When the lesion is suspected a burr hole is preferred. Most of the clot with its center and inner walls or membranes can be removed. What remains may disappear, and if not, a flap may be turned down if necessary. Some surgeons prefer to make an osteoplastic flap and have reported successive recoveries. Should the clot be so firm that a larger opening is required for its removal, I prefer a small fascia muscle pericranium bone flap about two and one half inches in width turned down through a straight scalp incision. Patients in coma for a prolonged period do not respond well.

I shall not discuss the various types or stages of a chronic subdural hematoma exacerbations and increases in symptoms and signs, reasons for increase in size, etc. Gardner, Munro,<sup>27</sup> Putnam, and others have fully discussed this phase of the subject.

Suffice it to say that the lesion may be present for a long time without being suspected or found, that the patient is

usually at first considered a tumor suspect, and that the lesion may have been present so long that its membranes have become calcified

### Sequelae and Late Results

I should like to discuss briefly the question of sequelae and late results in head injuries \*

In a general way I have observed that many army service patients, who have sustained a compound comminuted fracture of the skull followed by removal of a mosaic of bone fragments en masse and with no infection, may have but few subjective annoying symptoms, and their general well-being may be quite good. In this group the site of the cranial defect is more or less circular, it "cups" or is concave when the patient is in the upright position, and tends to bulge and become convex when he is lying down or when he stoops. In other words, the intracranial pressure is in a "neutral" condition. These patients may be free from headache, dizziness, convulsions, etc. This condition is in contrast to that associated with guttered depressed wounds in which no bone has been removed, or where there is a long, narrow cranial defect over which the scalp remains pulled down into a trough-like depression regardless of the patient's position. Many of the latter group complained of headaches and dizziness, and had convulsions. The defect in the first group resembled that in brain abscesses in which a fair-sized opening is made in the skull. In the abscess cases no convulsions have ever occurred except in patients who had convulsions previous to operation. In some, who had convulsions before operation, none occurred after operation for the abscess. In the abscess cases massive adhesions take place between the brain, meninges, and scalp. Therefore, brain damage and adhesions do not always result in convulsions. It is believed that the abnormal pull, drag, or push on the cortex without decompressive effect may have

something to do with the production of the convulsions

In this day and age when the word "compensation" comes to the fore so frequently, one is likely to be influenced directly or indirectly by the side of the fence on which one sits. One should not glibly dismiss the possibility that severe brain damage may have occurred. In one instance a good neurologist wrote a long report for the carrier about a claimant who had sustained a fissured fracture of the skull, and stated that he could make out no objective findings, that the claimant was exaggerating, and that his statements were not reliable. I had seen the same claimant in the service at Bellevue Hospital immediately after he was injured, and his external ear was full of brain substance which had been sheared off at the time of the fracture, followed by leakage of bloody cerebrospinal fluid for five days.

In five instances I observed the presence of a large collection of fluid beneath the dura before reading Naffziger's paper<sup>28</sup> on the same subject. The first patient had received a glancing blow from a bullet without skull fracture. He was considered a "post-traumatic psychoneurosis" case by the N P staff in a veterans' hospital. At the request of the staff, purely for psychologic reasons, I made a burr hole in the skull beneath the healed bald spot in the left frontal region where the bullet had knocked the hair off. This was done under local anesthesia. Much to my surprise, an enormous outpouring of subdural fluid occurred when the dura was nicked. As the fluid began to pour out of the dural incision, the patient stated that his headache was becoming less for the first time since his injury. His headache disappeared completely without return during the subsequent eight months follow-up period. This experience taught me a lesson.

It is remarkable how quickly one may say that the patient who has sustained a head injury is just a neurotic or neurasthenic person. One should consider that the brain is a very strange organ, that its

\* Gunshot wounds and craniocerebral injuries in the newborn will be omitted in this paper

exact mechanism of function is little understood or known, and that the difference between the brains of sane and insane people who have not sustained trauma, may be so slight that it cannot be recognized. Therefore, given a patient who has sustained brain injury to an unknown degree, it behooves the "expert" to be quite cautious in making a too positive statement about what the patient does and does not suffer.

In their closing remark in a paper on this subject, Strauss and Savitsky<sup>40</sup> wisely state "The whole subject of trauma and the nervous system needs considerable house-cleaning. We must divest ourselves of prejudices. Schools of thought should have no place in medicine. We should all belong to one school whose aim is to seek the truth and alleviate the suffering of the injured."

Among the many good papers which have been written on the subject of head injuries I should like to suggest that one could be benefited especially by reading the papers of Munro,<sup>27</sup> Coleman,<sup>6</sup> Fay,<sup>13</sup> Kennedy,<sup>20, 21</sup> and Wortis.<sup>44, 45</sup>

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## Discussion

Dr. John E. Scarff, *New York City*—Dr. King in his excellent article has covered the subject of head injury so thoroughly that little new can be added by discussion. It may be proper however to re-emphasize three or four of the more important points of Dr. King's paper.

As has been indicated any severe blow to the head may result in effects of three kinds: (1) in injuries to the coverings of the brain—that is, the skin and the skull; (2) injuries to the brain itself in the nature of concussion with its subsequent edema; and (3) intracranial hemorrhage.

In regard to injuries of the first type, I should really like to emphasize the importance of treating with the most meticulous care all lacerations of the scalp that have been accompanied by a severe blow to the head. The first objective is sterilization of the wound by débridement and free use of antiseptics; and the second objective is transformation of the ragged, dirty wound into a clean well-approximated surgical wound. The reason for the importance of this lies in the fact that whereas a patient may show only a lacerated scalp when seen a few minutes after an injury, twenty-four hours later the same patient may show signs of an intracranial blood clot which necessitates exploration of the cranial cavity through the area of the original laceration. If this wound is clean this exploration may be conducted with safety. If it is not clean, this

relatively simple exploration can only be carried out with great danger of producing meningitis or an intracranial abscess. My own practice is to use 70 per cent alcohol freely within the wound and, after débridement, to make a careful closure of skin edges without drainage. I am aware that there will be those who will object to the use of alcohol in this manner on the grounds that it will produce fixation of tissue within the wound. For my own part, I prefer to have superficial fixation of traumatized tissue to a depth of 1 or 2 mm rather than have live organisms remaining in the wound with subsequent infection.

Regarding the treatment of cerebral edema, there is nothing that I can add to Dr King's statements excepting emphasis. It is well known that following trauma the brain swells considerably, and everyone agrees that it would be desirable to allow it more space. However, no form of decompression has proved anywhere near adequate in neutralizing the swelling, and the only effect of decompression is to provide a weak point in the limiting membranes of the brain, which permit herniation of the brain with rupture of cortex and subsequent shock to the patient. Practically all neurosurgeons are now agreed that the proper treatment of cerebral edema is by dehydration and not by surgical decompression.

Intracranial hemorrhage is of three types

A Hemorrhage associated with fractures of the cranial vault. In these cases, hemorrhage comes from torn branches of the middle meningeal artery. The bleeding is therefore arterial in nature and extradural. The indications are for immediate evacuation of the clot and ligation of the bleeding points. When this is carried out early and properly, complete recovery may be expected.

B Hemorrhage associated with fractures of the base of the skull. In these cases, hemorrhage results from tears in the large venous sinuses running through the dura at the base of the skull. The hemorrhage is venous in character and is under low pressure. It occurs, usually, into one or more of the large cerebrospinal cisternae, located close to the sinuses at the base of the skull. From here the blood spreads out through the entire cerebrospinal fluid circulation and comes eventually to rest over the surface of the brain where the blood corpuscles plug the small cerebrospinal spaces and interfere with absorption of the cerebrospinal fluid. There is produced by this mechanism an acute hydrocephalus of nonobstructive type and it is this that contributes most largely to the death of patients who succumb to fractures of the base of the skull. There is no surgical approach that

will reach the bleeding point and no decompressive measure that will aid. The only rational treatment is an attempt to remove the bloody debris found in the cerebrospinal fluid by means of frequent lumbar punctures, and thereby prevent the development of acute hydrocephalus.

C Hemorrhage within the cerebral cortex itself may occur as a result of severe blows to the head. Here the bleeding almost always "points" into the ventricles whence the blood eventually reaches the general cerebrospinal fluid circulation and tends to produce nonobstructive hydrocephalus by the mechanism outlined in the preceding paragraph. In addition, these cases are usually accompanied by severe shock. Treatment for this kind of hemorrhage is largely the same as for hemorrhage at the base, as outlined previously.

It is obvious, from the above discussion, that out of all those factors that collaborate to produce increased intracranial tension following an acute trauma to the head, the only one that can be treated by surgery is the extradural hemorrhage. The important point, therefore, is to recognize the presence of such a hemorrhage. Occasionally this can be done from the history alone. A typical and classic example is that of a boy who is struck in the temple with a baseball. He recovers from the immediate concussion, but after a few minutes or hours of lucidity again becomes drowsy and stuporous, and develops a hemiplegia. In the presence of such a history, the diagnosis of extradural hemorrhage from the middle meningeal artery is almost certain. Too often, however, the unconsciousness resulting from the concussion alone continues for a longer period of time and merges, indistinguishably, from the coma developing as a result of an increasing intracranial hemorrhage. In these cases it is often entirely impossible, by purely clinical means, to say definitely whether or not the patient has an extradural hemorrhage. In such instances, whenever a patient with a head injury continues to have an unfavorable and downhill course under the conservative type of treatment, then it is important to determine the presence or absence of an extradural clot by means of bilateral trephination. The early and widespread use of bilateral trephination for diagnosis purposes I consider to be the most important single advance of recent years in our management and treatment of head injury. If the trephination reveals no hemorrhage, very little has been lost, whereas if trephination reveals hemorrhage, a great deal has been gained.

Regarding the technic in trephination, two points should be stressed.

1 Trephination should, in most instances,

be bilateral. There are two reasons for this. In the first place as pointed out by Dr. King in 50 per cent of the cases it is impossible to tell from neurologic signs upon which side of the brain the bleeding exists and secondly very often the hematomata are bilateral.

2. A second point to be stressed is the site of election for the trephination. In my opinion it is desirable that this be just above the zygoma for here it is possible to control the main branch of the middle meningeal artery. To attempt to seek out the many possible bleeding points on the convexity of the dura is often an impossible technical job and would produce so much shock as to defeat its own end.

In summary therefore, I have emphasized three points in Dr. King's paper.

1. The importance of converting lacerations of the scalp when accompanied by trauma to the head as early as possible into clean well approximated surgical wounds.

2. Secondly the superiority of treating cerebral edema by dehydration rather than by surgical measures.

3. Finally the early and frequent use of the bilateral exploratory or diagnostic trephination in patients who progressively fail under the conservative form of treatment.

Dr. Edwin G. Ramsdell, *New York City*—Out of a very large experience, Dr. King has presented the fundamental principles that should guide us in the treatment of head injuries. From scalp wounds to subdural hematomata, he has covered the entire subject. He has very tactfully avoided endorsing any school of therapy and has stressed the point that these patients must be studied and carefully observed from hour to hour. Neither dehydration, lumbar puncture nor surgical decompression should be done routinely but only as specifically indicated.

This is a tremendously important subject. Over 100,000 skulls are fractured annually in the United States with an average mortality of 25 per cent. The automobile is responsible for

about 80 per cent of these casualties. Because 64 per cent of automobile accidents occur in the rural districts the problem of the fractured skull is brought to the small general hospitals of the country. The general surgeon is interested and is handling a good percentage of these cases.

A study of head injuries has recently been made at the White Plains Hospital which is representative of the average suburban hospital service. One hundred and sixty consecutive cases of head injury including 111 skull fractures have been analyzed. Sixty of these recovered without dehydration, lumbar puncture, or operation. Seventy-one required treatment by dehydration and lumbar puncture. In this group there were 13 deaths or 18.3 per cent mortality. Thirty-eight cases required operation. In this group there were 15 deaths or a mortality of 39.4 per cent.

The total mortality in the entire series was 17.5 per cent.

This approximates the 15 per cent mortality that Munro has arbitrarily suggested as the maximum permissive mortality.

This result has been accomplished by following the principles outlined by Dr. King.

Absolute rest and quiet with hourly observations of pulse and blood pressure are the only routine procedures. Morphine is not given and x-ray examinations are not attempted. We feel very strongly that an x-ray of the head during the first few hours following an injury is contra-indicated.

With signs of increasing intracranial pressure dehydration treatment is commenced and lumbar puncture is done. If it is indicated lumbar puncture is repeated at twelve-hour intervals.

Operation is reserved for cases of depressed fracture of the vault so often compounded and potentially infected and for those other cases who do not respond to dehydration and lumbar puncture.

We feel that surgical decompression as a rule should be deferred as long as possible, except of course in those dramatic cases of extradural and localized subdural hemorrhage.

## NOT TOO MANY DOCTORS EVERYWHERE

Quite accidentally a radio Man-on-the-Street program in a western state a few weeks ago happened to interview a man who said he was a doctor who desired to become established in a practice. Responses at once came in in 72

letters, 11 telephone calls and one telegram from 64 towns that wanted doctors in Nebraska, Kansas, Iowa, South Dakota, Minnesota, Missouri and Wyoming. The list of towns is published in the *Nebraska State Medical Journal* for February



# AMENORRHEA AND STERILITY

## X-ray Treatment with Subsequent Birth of Normal Children

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ONE of the saddest conditions the gynecologist or obstetrician is called upon to treat is that of married women who apparently desire to have children, but are sterile. So poignant is the demand for relief in some cases, that the patient will stop at nothing from legitimate medical methods to voodooism, for not infrequently it means that the home will be broken up if sterility persists. Notwithstanding increasingly grave economic conditions, which make it difficult today to bring up children, very many sufferers from sterility urgently request help in order to be able to become mothers.

In most instances the patient has already been examined for the presence of pathologic conditions including the various tests for patency of the tubes, and in all instances have had some form of endocrine therapy, but without result.

We know, of course, that not all cases of sterility are the result of female disorders, that often the male is at fault and, as Kleegman<sup>1</sup> stresses, it is extremely important to examine the male before treating the female for sterility.

Because the usual therapeutic measures have proved unavailing, clinicians have long looked for another source for relieving amenorrhea and associated sterility, and this new system of therapy has been developed upon the basis of our knowledge of the effect of x-ray on human tissues and organs. Originally only the destructive effects of irradiation had been considered of therapeutic value. Nowadays, however, since we have a better understanding of the physiologic responses of body functions to irradiation,

x-ray therapy is successfully employed to control various endocrine dyscrasias and dysfunctions of vital organs.

Functional disturbances associated with gynecologic conditions were among the first of the abnormal phases effectively treated by irradiation. Because this procedure at first was found to be a specific therapy for suppressing menstruation, it was quite logically supposed that if properly employed in smaller dosages it might, instead of suppressing the menses, stimulate these functions which, for one reason or another, were dormant or sluggish. Thus it was that x-ray therapy was suggested for the treatment of amenorrhea and sterility.

In 1926 Rubin<sup>2</sup> reported successful results in the treatment of patients with amenorrhea and sterility by x-ray therapy. In 1927 Seitz<sup>3</sup> reported 118 successful results of 209 cases of amenorrhea treated in this manner. Recently Mazer and Spitz<sup>4</sup> reported beneficial results in 50 per cent of cases in their series treated for sterility.

We<sup>5</sup> have already published the results of our previous work in treating these conditions, and recently Friedman<sup>6</sup> has published the report of treating 9 cases of amenorrhea due to endocrinopathies with good results.

The results shown in our present study have served to strengthen our belief that in no other field of gynecology is irradiation more helpful and promising than in the treatment of functional disturbances of the ovary and of sterility.

Although as long ago as 1905 Halberstaedter<sup>7</sup> first definitely demonstrated

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New York City, May 12, 1938*

the sensitivity of the ovaries to x-rays, the nature of this reaction has not as yet been made fully clear, nor has the biologic action on the ovary been entirely explained. We can only review some of the important experimental work done within recent years.

The interrelationship between the pituitary, thyroid, and ovary has been recognized for many years. Very recently, however, Hartman<sup>8</sup> and his co-workers who previously definitely demonstrated the indispensability of the pituitary to menstrual bleeding, suggested that for the present the pituitary gland can be disposed of as the cause of menstruation. But Lacassagne<sup>9</sup> holds that one third of the anterior lobe of the pituitary is alone sufficient to preserve genital activity and that a definite minimum of anterior lobe is required to maintain normal physiologic balance of ovarian function. Mazer and Andrussier<sup>10</sup> emphasize the definite dependence of ovarian function upon the hormonal stimulation from the pituitary. However, Crossen<sup>11</sup> states that ovarian function is activated by the pituitary, and Ashheim and Zondek<sup>12</sup> prove that the pituitary produces its effect only when the ovary is present. According to Allen,<sup>13</sup> the anterior pituitary controls and maintains the action of the ovaries, and Novak<sup>14</sup> ascribes this control to the gonadotropic hormones produced by the basophilic cells of the pituitary. Mazer agrees with Frank<sup>15</sup> that the normal menstrual cycle depends upon the balanced activity of the two ovarian hormones.

### X-ray Action

Beclere<sup>16</sup> was the first to report the effect of x-ray on the pituitary. Lacassagne has shown that the anterior lobe of the pituitary is most resistant to destruction by irradiation and that therefore therapeutic irradiation of the pituitary is not harmful. Werner<sup>17</sup> found that x-ray treatment of the pituitary stimulates menstrual reaction, and because of this so-called stimulative action Borak<sup>18</sup> suggests pituitary irradiation for moderating climacteric symptoms of early meno-

pause. Katz and Parker<sup>19</sup> state that from close study and experience they are of the opinion that x-ray therapy to the pituitary is far more beneficial in the correction of functional disorders of the female than any endocrine preparation now available.

Does x-ray act mechanically, as in the case of polycystic ovaries, which are relieved (Stein and Leventhal<sup>20</sup>) by mechanical destruction of the cysts? In our series, 1 case had cystic ovaries proved at operation. Sterility was relieved by x-ray therapy, perhaps by destruction of the cysts. Does it destroy the corpus luteum, which suppresses menstruation, according to Corner, or does it stimulate general endocrinologic action and reaction in the body, setting in motion the normal interchange of hormones which produces normal pituitary, ovarian, and uterine function and thus allows for menstruation and subsequent pregnancy?

Does the x-ray destroy this inhibitory function of the corpus luteum? In our series, in which 52 patients became pregnant following x-ray treatment, 10 cases had had previous pregnancies, 6 of whom bore normal children, and 4 miscarried. Perhaps these had a persistent corpus luteum that inhibited menstruation and caused subsequent sterility. X-ray therapy, by destroying the corpus luteum, permitted these patients to menstruate, conceive, and deliver normal children.

### Theories as to Amenorrhea

Corner<sup>1</sup> states that progesterin, the hormone of the corpus luteum, will help cases of sterility and habitual abortion caused by lack of corpus luteum, as it acts to suppress menstruation. Allen says experiments have shown that surgical removal of the corpus lutea produces amenorrhea or sterility, as Stein and Leventhal have shown.

Wilson and Kurzrok<sup>22</sup> state that actual bleeding occurs only if the bleeding hormone is not inhibited by the corpus luteum hormone. Recently Frank<sup>23</sup> stated that there is no demonstrable evidence pointing to either a primary

pituitary or a primary ovarian causation of amenorrhea. In Zondek's<sup>24</sup> opinion, excess follicular hormone postpones menstruation and produces amenorrhea.

Mazer and Andrussier assert that organotherapy is far less effective than irradiation of the endocrine glands in the successful re-establishment of menstrual periodicity. Frank definitely states that no useful purpose is served by prescribing estrogens for amenorrhea. According to Mazer, Israel, and Kader,<sup>25</sup> x-ray irradiation perhaps inhibits overaction of the ovarian hormone stimulus and stimulates the corpus luteum secretory action, thereby promoting proper ovulation and affording relief of sterility. Taylor<sup>26</sup> likewise has shown that organotherapy is of little value in controlling mastitis associated with menstrual disorders, and states that x-ray therapy is often of definite therapeutic value in this condition, the x-rays achieving the result through the endocrine system.

Wolfe,<sup>27</sup> investigating endometrial biopsies obtained from cases of amenorrhea, states that the system may be the result of

1 Absence of function of the anterior pituitary lobe where the gonadotropic hormones originate. The endometrium is atrophic.

2 Excessive amount of follicle stimulating hormone, producing single or multiple granulosa cysts in the ovary without corpus luteum formation. The endometrium is hyperplastic (polyhormonal amenorrhea of Zondek).

3 Excess of luteinizing gonadotropic hormone, which results in a persistent cystic corpus luteum of the ovary. The endometrium is in the premenstrual phase.

In Wolfe's opinion x-ray therapy directed to the pelvis is of no avail in Group 1, yet we have very numerous instances of apparent stimulation of pituitary function in this group. In Group 2, the x-ray, he states, destroys the persistent follicle, resulting in anovulatory bleeding, and the results are generally good. In Group 3, x-ray by destroying the persistent corpus luteum

causes bleeding from a premenstrual endometrium. In our work in the treatment of neoplasms we have had frequent examples of actual tissue destruction by x-rays and can readily conceive of such a result on the follicle cysts.

In our opinion no other treatment as yet devised, including organotherapy, has yielded as satisfactory or equally good results.

The early enthusiasm aroused by endocrine studies along this line has so far been followed by disappointment. Stein and Leventhal have shown that endocrine therapy is fruitless in cases of cystic ovaries, amenorrhea, and sterility, and Frank states that estrogens are of little avail in this treatment. We can support these opinions, for many of our patients were given irradiation only after prolonged endocrine therapy had proved unavailing.

Taylor<sup>28</sup> is of the opinion that x-ray therapy in small doses as given by us is distinctly a stimulating action.

In every instance some form of endocrine therapy, including tablets of ovarian substances and the newer hormonal substances, had been used but with no result. All the cases had previously been examined for gynecologic abnormalities. In many histories previous tubal insufflation was recorded, and in a large number of instances the husband had been examined for potency.

In a number of cases previous surgical corrective measures or curettage were carried out without relief of symptoms. In 1 case artificial insemination had been tried three times with no result.

Treatment in all cases was limited to irradiation with high voltage x-ray administered in small doses to the ovaries, the pituitary, and in a few instances to the thyroid.

The factors used were 200 kv, 4 ma, with 0.5 mm Cu plus 1 mm Al filter, with a target distance of 30-40 cm, and treatment directed through anterior and posterior right and left pelvic fields of 9 by 12 to 10 by 15 cm, and to the pituitary area on the skin through a 6 by 8 cm field. The dose given was

75-150 r (measured in air) per field at weekly intervals for three weeks. The anterior pelvis was treated the first week, the posterior the second, and the anterior again the third week. Occasionally a fourth treatment was given. The pituitary was treated at the same session as the anterior pelvis.

All cases received x ray therapy to the pelvis and 104 received additional treatment to the pituitary. In 6 cases the thyroid also was treated.

### Analysis of Cases

The amenorrhea suffered by the patients herewith reported extended for periods of from one month to fourteen years and the sterility from one to eighteen years.

In some cases the amenorrhea or sterility occurred subsequent to previous pregnancies or miscarriages and abortion. There were 142 cases of married women in this group, 124 of whom we have been able to follow up. The oldest was 45 years of age and the youngest 19. Our study shows that the younger the patient the more successful the results. Those most successfully treated were within the 21 to 29 year group.

### Results

Of the 142 patients treated, menstruation was re-established in 124. In 52 instances subsequent pregnancy occurred. Of the 52 who conceived, 17 did so more than once. Five women aborted, 2 aborted twice. Forty four went to term and delivered 50 normal babies. 1 woman was pregnant, in 1 woman an ectopic pregnancy developed, which was terminated by operation, and in 1 case an abnormal child was born. One woman had twins, both girls and both physically and mentally normal, 10 women had more than one child. In the group of living children there were 27 boys and 23 girls and reports from their parents have disclosed no abnormalities or physical deformities in these children.

Because of the successful results achieved through irradiation in the large number of cases in our series, with sub-

sequent follow up of children born of irradiated mothers, we feel warranted in reiterating our previous conclusion that irradiation, when properly given, is harmful neither to mother nor to offspring, and that it has proved a valuable therapeutic procedure for the treatment of amenorrhea and the relief of sterility.

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### Discussion

Dr Howard C. Taylor, Jr., *New York City*—In discussing the results of the treatment of any endocrine condition one must recognize at the outset that there will be some successes attributed to the treatment that are actually due simply to a spontaneous improvement. It is possible that a few of Dr. Kaplan's cures are on this basis, but the percentage is too high to believe that the therapy was unrelated. Other series of figures corroborate Dr. Kaplan's findings.

On the other hand I believe that Dr. Kaplan's figures give a somewhat too optimistic picture of the situation. He has reported a re-establishment of menstruation in 124 of 142 patients treated—a cure rate of 87 per cent. For sterility

there were 52 conceptions among 142 cases, or 36 per cent. These are almost unheard of figures, and if generally maintained should cause radiation to displace all other forms of therapy, for no other agent can hope to approach these percentages in the treatment of amenorrhea or sterility due to endocrine causes.

The results obtained must, I feel, be attributed to a very careful selection of cases, and I would like especially to have Dr Kaplan discuss the type of case for which he feels this therapy is particularly suited. It would be of practical value to gynecologists, also, if he would discuss for us the relative prognosis of different types of amenorrhea, as for example, the amenorrhea present since puberty and the secondary amenorrhea of varying duration, such as of three-months', six-months', twelve-months', and five-years' standing.

What happens when the ovary is radiated by a so-called stimulating dose is hard to determine. We have attempted to solve this problem in the gynecologic and obstetric service at Bellevue Hospital and New York University Medical School by measuring the urine output of ovarian hormone before and after x-ray. To do this we have collected all the urine the patient excretes during the month before her x-ray and have analyzed this in three-day samples for estrogenic hormone. We have later, after the x-ray therapy, studied the patient again to see if the rate of hormone excretion has increased. The work is laborious and we have analyzed only 5 cases to date. Our selection of cases has been somewhat unfortunate. The patients were all cases of amenorrhea of long standing and low estrogen excretion. None has menstruated following treatment and in none has there been any increased excretion of estrogenic hormone. We are inclined to believe that the successes with x-ray therapy are perhaps obtained in the cases of so-called hyperhormonal amenorrhea, and we have not yet found such a case for study.

I believe that Dr Kaplan performs a valuable service in keeping this important subject before the medical public.

Dr Samuel A. Wolfe, *Brooklyn, New York*—Dr Kaplan is to be congratulated upon the excellence of his results, which positively illustrate the value of x-ray in the treatment of amenorrhea and concomitant sterility. It is to be regretted, however, that clinical data are not more complete. Details regarding endocrinologic stigmata, anthropometric measurements, hormonal assay of blood and urine, and endometrial biopsy all throw light on the underlying cause of amenorrhea.

Endometrial biopsy is of special importance, for the morphology of the uterine mucosa obtained from amenorrheic patients reveals the varied physiologic aberrations. With complete ovarian failure the uterine mucosa shows marked atrophy. X-ray in this group is of no avail. Incomplete maturation of the follicle produces an irregular pattern of the proliferative phase characterized by glands of the interval type lined by hypertrophic cells. The stroma is edematous and the vessels are congested. The ovaries contain persisting granulosa cell cysts but lutein bodies are not found. In more advanced cases of this type glandular-cystic hyperplasia results. A premenstrual endometrium is rarely encountered, indicating a persisting corpus luteum cyst as the cause of the amenorrhea. Paradoxically, the endometrial patterns of irregular estrin phase and glandular-cystic hyperplasia are also found in the cases of functional bleeding from the female genital tract. Before complete knowledge of endocrinologic physiology was established, these cases were successfully treated by the use of x-ray or radium. In a series of 22 cases of puberty bleeding with glandular cystic hyperplasia reported in 1926, the speaker obtained uniform success by intrauterine application of 200-350 mg hours of radium. It is not surprising, therefore, that good results are obtained by x-ray in amenorrhea patients with similar pathologic findings. The difference in symptomatology is dependent upon the estrin level maintained by the granulosa cells of the persisting follicular cysts. A drop of blood estrin is the causative mechanism in bleeding. A constant estrin content in the blood produces only amenorrhea even though the endometrial pattern is the same in the bleeding and nonbleeding cases.

Since granulosa cells in the persisting follicular cysts are markedly radiosensitive, x-ray therapy or intrauterine radium causes prompt necrosis. Secretion of estrin is halted. The estrin content of the blood accordingly drops and vaginal bleeding appears. The inhibition to the pituitary gland is removed and a normal pituitary-ovarian cycle is reinstituted. Ovulation and menstruation accordingly follow and ultimate pregnancy occurs if there are no other inhibiting factors. In the light of these facts the success of x-ray or radium treatment in amenorrhea is explained. Both, however, should be employed only when treatment with standard endocrinologic preparations has been unsuccessful. Dr Kaplan has earned our commendation for his excellent therapeutic results empirically obtained before the physiology of amenorrhea was fully understood.

Dr I. Seth Hirsch, *New York City*—First a word to clear the historical record of this subject. I treated my first case of amenorrhea with small doses of x ray with the purpose of producing a normal menstrual cycle in February, 1923. I was not the first to suggest this form of therapy for ovarian hypofunction. Van de Veld and Frankel on a suggestion of Opitz and the experimental work of Geller reported in 1914 and 1915 on the use of x rays for the regulation of the menstrual cycle by small doses of radiation and Flatau in 1922, and also Linzenmeier, in the *Zentralb f Gynäk* published cases of altered menstruation in which the menstrual cycle returned to normal as a result of small doses of radiation applied to the ovarian region. Pregnancy followed in some of these cases. A large series was also reported by Thaler in 1923.

The first case that I treated was a woman of 28 years who had not menstruated for eighteen months. She received treatment to the right anterior pelvic portal on February 4 1923 and to the left anterior pelvic portal on February 10 1923. On March 17 1923 she flowed for three days. So dramatic and prompt were the results that I was stimulated to continue this work and spoke of it most enthusiastically.

In 1926 I was able to publish the results of treatment by this method of 38 cases of amenorrhea. <sup>100%</sup> of this group more or less regular menstruation followed the treatment, and pregnancies followed in 18 per cent of the successful cases. I published two papers in that year one in *Radiology* August, 1926 and one in *Surgery Gynecology and Obstetrics* November 1926. Before this report, Dr A. J. Rongy to whom I am indebted for many of the cases treated presented a report on 10 cases I treated for him to the thirty-sixth annual meeting of the American Association of Gynecologists and Abdominal Surgeons Philadelphia, Pennsylvania September 10-21 1923 which was published in the *American Journal of Obstetrics and Gynecology* 7 No 2 (Feb.) 1924 so that this in reality is the first publication on this subject in English. I cite this to get the record straight because the reader of the paper and his associates as judged by their publication apparently do not know this.

I have now a record of 117 cases with 21 pregnancies.

I must admit being envious of the ability of the reader of the paper to follow up his cases with such accuracy as to enable him to give actual statistical records of how many cases remained permanently cured. I regret that I have not been able to follow up all the cases and I do not know in how many of these cases in whom the menstruation directly followed the

treatment continued to have normal menstrual cycles. I suspect that in quite a percentage the amenorrhea returned. But an outstanding event like pregnancy is easy to record with accuracy.

Here, too Dr Kaplan's statistics are interesting for he has a pregnancy percentage of 53 in his successful cases and in his paper later published in the *New York State Journal of Medicine* 38 No 8 (April 15) 1938, of 117 cases, 79 were successful and of these 44 became pregnant giving about 55 per cent. These are extraordinary results but I cannot understand from his report what the indication for this therapeutic measure is in 4 cases who had not been pregnant for only two years or in a case of one year sterility and amenorrhea for three months (is this sterility?) Is the treatment justified in a case in which the menses has been irregular for three months and the woman has had no child for one year? And if such cases become pregnant can the result be ascribed to the treatment? I am sure he knows that pregnancy is a normal physiologic process and may take place without x ray treatment.

The first pregnancy that occurred in my series was in a nullipara of 24 years. She was married four years menses had ceased eighteen months before marriage and after this event was irregular every three to four months. The last menstruation was four months before treatment. She was treated on April 26 27 and 30 1923. Menstruation followed regularly and in March, 1924 she became pregnant and gave birth in November 1924.

On April 11 and 12 1923 I treated a woman of 37 years who had been married three years and who had been pregnant and aborted two years before. Her last menses took place eight months before treatment. Following the treatment menstruation was resumed and in 1925 she gave birth.

On March 14 17 and 20, 1923 I treated a woman of 30 years, who had one child six years before, had miscarried in the third month four years before, and one year before treatment had given birth to a full term stillborn. Since that time she had menstruated but three times. Regular menstruation followed treatment, and in June she became pregnant and gave birth.

There is no question that in certain cases a causal relationship exists between the pregnancy and the treatment, but one must use judgment in evaluating the results.

I want to conclude with a word of caution. Dr Kaplan seems certain that the children resulting from the pregnancies are perfectly normal. He says it with emphasis and shows us

some nice photographs. It has been broadcast in newspapers as a result of his previous paper that this method of treatment "helps to make babies," but I am not so sure that babies so made, even if apparently normal, may not in time to come produce offspring who will show anatomic and physiologic deformities. It is true that Muller's views on this subject are deductions drawn from experiments on fruit-flies and mice. But it is not at all illogical to conclude that the trauma by radiation applied

to the ova may produce a modification of one or more of the various functions of these cells and that the modified genes may transmit stigmata of degeneration, anatomic or physiologic. Further, irradiation of the pituitary results in the production of stunted fetuses in lower animals. Caution ought to be exercised in shouting the efficacy of this new method. We may indeed have cause to regret ever having applied this form of radiation to the ovary with the purpose of increasing fertility.

#### "THE STATUS OF HOMEOPATHY"

"As we look with pride at the towering structure which is Hahnemann Hospital on North Broad Street in Philadelphia, and at the new college building which is taking shape nearby on Fifteenth Street, as we admire our beautiful Fifth Avenue Hospital in New York City and observe the newly laid cornerstone of the New York Medical College, we cannot help but feel that at last homeopathy has a secure future and will be able to withstand any and all attacks which may threaten it. How fervently we wish that these magnificent edifices, staffed by able and loyal men, presented the whole picture! Unhappily they do not. Let us recall some events of the last few years and see how the picture changes. First, was the order to curtail the number of hours devoted to the teaching of homeopathic materia medica and therapeutics in our curricula. Compliance with this was indeed a serious blow to our efforts to prepare our graduates so that they might ultimately become skilled in the practice of homeopathy. Next was the order to remove the word 'homeopathic' from the name of our colleges and obediently our old New York Homeopathic Medical College and Flower Hospital was changed to the New York Medical College and Flower Hospital. Now comes a 'suggestion' that as vacancies arise on our faculties, that we fill them with men more eminent in the profession than has been our custom in the past, meaning, of course, that they be chosen from the ranks of the dominant school instead of from our own school. In view of these things, we must ask ourselves, how long will it be until we are ordered to discontinue entirely

the teaching of homeopathic materia medica and therapeutics in our colleges.

"It is a trite saying that forewarned is forearmed, but one pregnant with truth and wisdom. So in view of these happenings it is meant that we search for our vulnerable spots and take proper steps to strengthen them. First, let us inquire, why is homeopathy being attacked, and why is it so vulnerable? We can not deny that our fundamental principle, 'Similia similibus curantur,' has never been accepted as a natural law by the scientific world, in fact, by the dominant school of medicine it is definitely considered a false and unwarranted assumption, consequently, any therapeutic method based on this principle must necessarily, to them, be ineffective. This situation is undoubtedly the chief source of our vulnerability. How can it be remedied? The first question we must ask ourselves is this, 'Is this principle a demonstrable one, i.e., can its truth or falsity be definitely demonstrated and proved by a properly conducted experiment?' Unquestionably, this is a demonstrable proposition and its truth may be proved, not by argument, but by carefully controlled experiment carried out under strict test conditions. It is quite time, after more than a century of futile argument between its practitioners and its antagonists, that the homeopathic profession should undertake the definite proof of its truth or falsity. So sure are we of its truth that we should welcome this test as a step that will put homeopathy on a solid foundation and assure its continued existence."—E B J in *The Journal of the American Institute of Homeopathy*

# PHYSICAL THERAPY IN SMALLER HOSPITALS

## Its Economic Implications

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**I**N writing this paper, it is hoped to demonstrate that even in a smaller hospital of 75 to 100 beds, if the physical therapy department be carefully and wisely organized and be operated systematically, it will more than justify the expenditure in terms of the hospital, the insurance company, and the patient.

To begin with, what is meant by a carefully and wisely organized physical therapy department? In a smaller hospital this means the following: (1) a limited but adequate armamentarium; (2) a pleasant location with ample space; (3) a small but selected personnel; (4) a physical therapy department coordinated and cooperating with the other departments of the hospital; and (5) the keeping of necessary records.

The equipment of a small hospital should include: one or two short wave diathermy machines, one or two air-cooled mercury quartz lamps, one water-cooled mercury quartz lamp, two radiant lamps, a bulb baker, one sinusoidal and galvanic current generator, a carbon arc lamp, one bulb radiant heat lamp, one whirlpool bath, a paraffin bath, one massage table, a muscle stimulating unit and possibly later on a Hubbard tank, one or two Pavex machines, a portable static machine (Titus design) and a limited equipment for a small gymnasium. Although the necessary modalities will vary in number and type with the character of the cases, the list cited is adequate for a small general hospital. Indeed, the amount of work that can be accomplished thereby is surprising.

The space devoted to the physical therapy department and its location are of great importance. Too often this

department is relegated to the remotest and darkest recesses of the hospital, a practice that should be avoided since physical therapy service requires bright, spacious, and well ventilated quarters. About six cubicles are needed. Each should be sufficiently large for a cot or treatment table, a machine, the operator, and dressing room space. The floor covering should be a warm-colored linoleum. An elevator should be close by for the convenience of the patients to and from the department.

Let us consider the personnel next. In a smaller hospital it is hardly to be expected that a physician be in constant charge. A capable technician or the intern on service, however, should be able to follow explicitly the prescriptions of the physician in charge. This technician or intern should make note of and report any peculiar or unusual reactions and any new symptoms or findings. Moreover, he should be pleasant to, and display a genuine interest in, his patient in order to counteract the monotony of routine work. Some smaller institutions, however, may be fortunate enough to have a staff physician who does considerable physical therapy. In this case, the institution is certainly fortunate, for thus personal supervision can be provided—for patient on the one hand, and for the technician, the intern, and the nurse, on the other. Possibly this physician could be induced to take charge or to direct the department. Since this would entail considerable additional work and time, an arrangement might be made, either in terms of salary, or such as that proposed by Coulter.<sup>1</sup> "The physician is to be given the net profits. The expenses of the department will include equipment, depreciation interest on in-

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vestment, rent for space, salaries, supplies, etc. In this way, the hospital will neither make nor lose money. The physician is to receive the net profits until such time as he has received the amount equal to that which the hospital has taken for expenses, then the hospital is to receive 10 per cent and the physician 90 per cent of the net profit until such time as the net profit becomes \$10,000, when the net profit is from \$10,000 to \$15,000, the physician is to receive 85 per cent, the hospital 15 per cent, and so on. This removes the hospital from the field of competitive medicine, interests the physician in keeping down the expenses of operating the department, and gives him practically all the profit."

The figures would change proportionally in a small hospital. Furthermore, a physician in charge could prescribe the indicated treatments, observe progress, and pass ultimately on the maximum limits of improvement. By making weekly rounds jointly with the chiefs of other departments, he could recommend adjunctive physical therapy treatment. In this connection a demonstration might be given to the active and visiting staff members, to the interns, and to the senior nurses. The demonstration could be supplemented later by lectures to those further interested. In the absence of the physician in charge, the intern or technician would take charge. The intern should take a more active interest in this department, it seems to me, so that when in private practice he would be familiar with the intrinsic value of physical therapy, and avail himself thereof when hospitalizing his cases.

The important factor contributing to the success and popularity of the physical therapy department in any hospital, large or small, is its relationship with the other departments. Because the departments are smaller and contacts are closer, cooperation should be achieved more readily in the smaller hospital. Physical therapy should be pointed out as an important adjunct to medicine and surgery. The idea that this department

is both "a dumping ground" and "a graveyard" either for desperately acute or hopelessly chronic cases should be dispelled. Then, consultations should be made freely but conservatively. Rounds, as already suggested, should be made with members of other staffs and, when practical, work should be done conjointly, especially in such departments as orthopedics, rhinolaryngology, gynecology, dermatology, internal medicine, and surgery. When other departments send new cases for physical therapy treatments, see that necessary x-rays and histories have been taken and a diagnosis—at least a tentative one—has been made. By attending staff meetings and taking an active part in them, presenting the more interesting cases, reading papers, inviting visiting physical therapists to participate in the discussions, much can be done to effect closer cooperation between the other departments and the physical therapy department.

The "black sheep" of most departments is found in the keeping of records. And it is true also of physical therapy. Records are required and are essential to the physical therapy department. Although it is believed by many that physical therapy records are complicated and multifarious, this is an illusion. As a matter of fact, record-keeping in this department, if done properly, can be reduced to four basic items that include the important data of a good record in physical therapy. The basic items are (1) the types of modalities used, (2) the number, duration, and dates of treatments, (3) the progress made, and (4) the results obtained. Illustrative of simple but rather complete treatment charts or records, such as those of Hansson<sup>2</sup> and Kovács<sup>3</sup> could be cited. Does all this sound so complicated that it should be dreaded?

Now the expenditure for setting up a physical therapy department such as the above is really slightly more than one given by Watkins<sup>4</sup> in a paper read before the San Francisco Casualty Insurance Attorneys Association on minimum physical therapy equipment in the office

This equipment, with a technician, could adequately treat 15 patients per day, the minimum cost of a minimum physical therapy plant (which would include practically the equipment mentioned earlier except those items stated toward the end in the form of a later addition) would be, with installation, about \$3,500. The estimated monthly maintenance would include salary (trained physical therapy technician), rent telephone, laundry, drugs and supplies, depreciation (five years), fire insurance, interest on the investment, vacation (two weeks with pay for technician), and monthly mechanical overhauling of plant, totaling \$350. The year's upkeep would be \$4,200, or a daily upkeep of \$13.75. Fifteen patients at \$2 per treatment for 305 days would produce \$9,150—less upkeep for year would leave an income of \$4,950. Inasmuch as the physical therapy department in a small hospital is practically identical in cost to that of a complete modernly equipped physical therapy office, the above figures would apply about equally to both.

In addition to the financial side just explained, there are still other values accruing even to a small hospital through the inclusion of a physical therapy department. It would be known as a modern institution. It would meet the class A requirements of the American College of Surgeons. Coulter<sup>4</sup> says "Since the primary consideration of the hospital is the patient's welfare, due consideration must be given to the possibility of shortening the period of convalescence. This will also increase hospital efficiency, a problem in which all hospital administrators are interested, by reducing the patients' stay in the hospital." Then the number of treatments given to ambulatory outpatients would increase, since treatments would continue after leaving the hospital. Moreover, the visiting staff could avail themselves of this department and send their private patients for physical therapy treatments. Kovács<sup>5</sup> says "Much valuable time is wasted and much needless suffering is maintained in hospitals which do not

provide physical means at the bedside." Insurance companies would look with much favor on hospitals so equipped and would not insist on sending patients elsewhere for this necessary and recognized service. This service would be an added attraction for internships and scholarships in physical therapy. Again Coulter<sup>7</sup> says "From the surveys that have been made it appears that approximately 70 per cent of the cases in a general hospital of average size can be influenced beneficially by physical therapy administered by a competent personnel in a properly equipped department." Would you not say that there is a definite economic implication as far as the hospital is concerned?

The economic implications of physical therapy in the small hospital, as well as in the large, should be clear to insurance companies also. The period of hospitalization can be effectively reduced, as Rebhorn<sup>8</sup> estimates. "That the number of days of disability was reduced from 12 to 28 per cent by physical therapy." Further, Granger<sup>9</sup> says "In a recent report issued by the Aetna Life Insurance Company it is stated that the industrial rehabilitation clinic established by them at Syracuse, New York, has shown in 51 months, with 474 cases treated, a saving of \$163,000 over the evaluation of the impartial state board." Inasmuch as the injured worker now has free choice of physician, is it not logical to assume that this saving can still be continued by these same companies? It is, although they must permit the injured to go to the hospital with physical therapy service, for as Wilson<sup>10</sup> says "It is indeed quite astonishing to see how rapidly progress is made and benefits result from early mobilization of fractures. Let anyone who doubts the validity of these claims try the experiment of treating one of two patients with similar fractures of the ankle by early motion, and the other without. He will find that the first patient will be ready to return to work in almost half the time required by the second." So it is noted that what at first seemed an additional expense on the

part of these companies, has proved ultimately to be a substantial monetary saving

Let us look at this from the patient's point of view. Physical therapy is helpful in reducing pain, the length of hospitalization, and the accompanying expense. It also reduces the period of partial and total disability of patients and minimizes their disfigurement and deformity, as Kovács<sup>11</sup> intimates. "Many conditions of fibrositis, adhesions, atrophy, ankylosis following inflammatory conditions could have been returned to useful activity by the early and intelligent use of physical measures preventing resorption and restoring function." By accomplishing this the patient is returned to his community earlier, and thereby becomes productive almost immediately. Moreover, the patient's stay in the hospital, especially if of long duration, would become more comfortable and less distressing, thereby decreasing the need for administering either narcotics or other disagreeable remedial measures. During this convalescence there would be the additional psychologic value to the patient of observing the progress of his recovery through physical therapy treatments as noted on his treatment chart (e.g., diagrams and measurements). Finally, physical therapy would give the patient the added benefits of such new adjunctive modalities as are used in electrosurgery, medical diathermy, electrochemical treatments and diagnosis, phototherapy, and mechanotherapy (much to the chagrin of chiropractors)—all of which would help to curtail the ever-present misery of the sick and the everlasting agony of those maimed through injury.

In conclusion, it is hoped that this paper has made clear the economic implications of including a physical therapy department in a small hospital—a step fully warranted for the hospital, the insurance company, and last but not least, the patient.

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### Discussion

Dr Jerome Weiss, Brooklyn—In a concise and interesting paper Dr Syracuse has presented the salient details to be desired in the physical therapy department of the smaller hospital of 75 to 100 beds. He calculates a capacity of 15 patients per day, and considers that each patient will pay \$2 per treatment. If such is the case then we must further qualify our small hospital as a private one, or a hospital handling a good percentage of compensation work. Obviously for a voluntary or county hospital the financial statistics given by Dr Syracuse must be entirely revised.

It is difficult to estimate the equipment for a physical therapy department that will serve outpatients as well as house cases, as the former will constitute a highly variable factor numerically. A system generally more satisfactory is to maintain distinctly separate departments for each group of patients, unless the total number does not warrant the additional expense.

In the list of equipment Dr Syracuse has omitted the conventional diathermy machine entirely. This is to be regretted, as we must still consider the short-wave generator a valuable adjunct to, rather than a substitute for, the diathermy machine. No short-wave generator now available will produce a good desiccating cold spark or a substitute for it. Lacking this highly desirable feature, much of the excellent minor electrosurgery possible with such a cold spark cannot be accomplished. Moreover, the superiority of short-wave therapy over conventional diathermy must be more firmly established before we are warranted in abandoning the latter.

For the treatment of traumatic cases, particularly industrial casualties with a compensation angle, hydrotherapy in its broader application would seem to deserve somewhat more consideration than Dr Syracuse has given to it.

It is difficult to lay down a hard and fast rule that will apply to any hospital of a given bed capacity. In this paper Dr Syracuse has con-

sidered the needs of the average small hospital and he is to be congratulated on a most complete and acceptable presentation of his subject

Dr H. J. Behrend, *New York City*—It was a pleasure to listen to Dr. Syracuse's excellent paper. Dr. Weiss has mentioned hydrotherapy as an important branch of physical therapy by which we are able to change all the functions of the body through an external stimulation of the skin. It is no exaggeration to state that all that is needed to run a hydrotherapy department is a towel, warm and cold water, a bucket, a bath tub, a pair of arm tubs, and a steam jet which is easily connected with the house steam line. No further expense is necessary. If the economics of the hospital permit, a whirlpool bath, a paraffin bath, Hubbard tank, and mud kettle may be purchased later. It should always be kept in mind that hydrotherapeutic applications should not be reserved for traumatic cases only and as a last resort for the incurable, but that they are of value throughout general medicine. The possibility of doing this is not so much a matter of equipment of the department. It is a matter of technic which should be mastered by both the technician and the physician.

Dr. David Lubarsky, *White Plains*—Dr. Syracuse in his splendid paper adequately covered the essential features of a proper physical therapy department in the smaller hospital.

However, some of these hospitals were built twenty-five or more years ago when physical therapy was not a recognized specialty. It is therefore almost impossible to obtain adequate space properly ventilated in such older buildings. When new wings are being added to an already existing hospital or when an entirely new building is being planned, it behooves the physician in charge of physical therapy to insist—sometimes very strenuously—upon adequate floor space for his work. Fortunately in the smaller hospitals there often exist greater intimacy and understanding between the staff physicians and also between the staff and members of the nonmedical board. By exercising persuasion a great deal can be accomplished. In these modern times, it is very essential that the physical therapy department should not be placed in the cellar but should be given ample floor space properly air-conditioned and provisions should also be provided for enlargement and growth.

I wish to thank Drs. Weiss, Behrend, and Lubarsky for their kind and valued discussions. However, I wish to state that the conventional diathermy was not omitted intentionally from the list of armamentarium.

### SYMPATHY VS REASON

The influx of refugee physicians into this state has complicated the formerly simple problem of licensing foreign graduates. Prior to the rise of the dictatorships, educational standards in the leading European universities were based on accepted scholastic principles and it was possible to make a fairly accurate comparison between courses given there and here.

Today all this has changed, remarks the *New York Medical Week*. In the dictator countries educational standards fluctuate with the whims of the ruler. Famous universities can no longer be depended upon to adhere to accepted academic principles. Moreover, the number of foreign applicants has increased so enormously that it is no longer feasible to continue the practice of accepting them without examination.

On the one hand is profound sympathy for the victims of a ruthless persecution; on the other

standards painstakingly erected over a period of many years to protect the public health. New York State's requirements for a medical license are equaled in few countries, surpassed in none. It is only fair to expect foreign physicians who desire to practice here to pass the same examination as native practitioners.

Some foreign physicians who fail to understand this necessity have sought to compel the Regents to endorse their licenses without examination. In refusing their demand, the Appellate Division has wisely held that the State has the right to demand that those who seek to practice medicine and surgery or to diagnose and treat human diseases, ailments or deformities shall pass a satisfactory examination as evidence of skill and competency. Such a requirement is neither unreasonable nor discriminatory.

# CHRONIC APPENDICITIS IN CHILDREN

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**A**PPENDICITIS is the most frequent and the most serious of abdominal diseases in children. The New York City Department of Health figures show that for those under 15, the fourth largest cause of death, accidents included, is appendicitis. A remarkable rise in mortality from appendicitis is shown by Metropolitan Life Insurance statistics. In the years 1925-1929, as compared to the years 1911-1915, there was an approximate 60 per cent rise in mortality in children under 12. The mortality in children at Post-Graduate for the years 1928-1938 was 5 per cent for 245 acute cases, and zero for 161 chronic cases. Children with ruptured appendices and spreading peritonitis had a mortality of 35 per cent. Obviously, it is in this group that appendicitis is so lethal.

It is imperative that the medical profession endeavor to lower the mortality of this disease. There are three chief methods of accomplishing this purpose, namely (1) early operation in acute appendicitis, (2) improved preoperative and postoperative care, and (3) operation in the chronic or formative stage.

This paper will deal chiefly with the third method.

Numerous authors, among them Peterson and others, state that obstruction is the real cause of both acute and chronic manifestations of appendiceal disease. Any interference with the blood supply of, or any interruption of the mucous fecal current or tide into or out of the appendix, will bring on an attack of colic.

There are a number of anatomic predisposing causes of appendicitis, as so well set forth by J. Wilham White.

1 The appendix is an apparently functionless organ, and like other vestigial

structures, it appears to be of low resistant power.

2 The appendiceal mesentery is scanty, its free border is shorter than the border applied to the appendix and the mesentery sometimes does not extend beyond the middle of the appendix. The appendix is, therefore, thrown into irregular curves or coils. The appendix is attached to both the cecum and the mesentery of the ileum, so that distention or displacement of these portions of the intestines makes traction on the appendix and may cause strangulation.

3 The appendix is dependent for its blood supply upon a single artery, which, with its accompanying veins running in the folds of the mesoappendix, is subjected to pressure by traction or angulation, this interference leading to edema of the mucous membrane of the appendix and obstructing free drainage of the lumen. After infection has supervened, septic thrombi may occlude the vessels.

4 There is a great disproportion between the length and the lumen of the appendix (16 to 1), it is funnel-shaped, it is removed from the direct intestinal current, its muscular walls are weak, its position is dependent, the appendicocolic orifice is inefficient.

5 The submucous coat, which determines the strength of the appendix wall, is not well developed until the age of 10 or 12.

6 The abundance of lymphoid tissue in the appendix, as in the tonsils, favors rapid swelling and inflammation, and obstructs drainage.

7 Some appendices are congenitally misplaced, as the retrocecal or retroperitoneal, or are bound by veils or adhesions.

It is probable that a passive hyperemia

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from twists, links, or traction is the starting point of serious trouble, the next steps being retention of mucus, epithellum, and feces, and sometimes the formation of a concretion, occurring in the presence of bacteria invariably found in this part of the intestinal tract and ready to take on pathogenic action in the presence of irritation or mechanical obstruction. The subsequent steps may be ulceration, parietal infection, gangrene, perforation, and peritonitis.

No doubt this chain of events may stop at any link and resolution ensue with the return of the appendix to its former state. In the earlier stages of congestion, catarrh, distention, and poor emptying the clinical symptoms are largely referred, producing pylorospasm, ileal stasis, or colonospasm. In the first appendiceal difficulty the chain of events may progressively and swiftly lead to an acute appendicitis, but it seems logical that many patients with acute appendicitis have had minor trouble with their appendices before the fulminating attack.

It has been our desire to diagnose these appendiceal attacks in their formative or chronic stage by the use of available modern methods. For this purpose a combined study by the surgical and pediatric departments\* of the subject of appendicitis in children was begun at the New York Post-Graduate Hospital ten years ago with a prescribed routine of history taking, physical examination, operative and pathologic findings, and follow up done in the surgical pediatric clinic.

Children with abdominal complaints possible due to appendicitis were thoroughly examined by pediatricians and surgeons and in many cases by a roentgenologist. An effort was made to eliminate any other condition that might have accounted for the symptoms. Among these conditions are pleural, pulmonary, pericardial, and meningeal inflammations, gastroenteritis, pyelitis, rheumatic fever, and allergy. Among the surgical diseases

TABLE 1—IRRITATIVE SYMPTOMS OF PREVIOUS ATTACKS

	Percentage
Indigestion	77
Nausea	77
Vomiting	65
Gastrointestinal upset	66
Loss of appetite	68
Constipation	50
Diarrhea	33
Colic	43
Urinary symptoms	28
Previous attacks	88

are especially mesenteric lymphadenitis, Meckel's diverticulitis, obstruction of the right kidney or ureter, intestinal obstruction, pelvic disease in females, psoriasis, hip joint disease, etc. When the history and process of elimination indi-

TABLE 2—SYMPTOMS OF PRESENT ATTACK

	Percentage
Pain	91
Nausea	76
Vomiting	57
Constipation	45
Diarrhea	13
Dysuria	29

cated a probable chronic appendicitis, complete blood counts and urinalyses were done. Gastrointestinal x-ray studies are performed in one-fourth of the cases and recommended in the others. In some cases, lung and intravenous pyelogram x-rays were made.

During the ten year period, from 1928 to 1938, at the Post Graduate Hospital, acute and chronic appendicitis cases made up 8 per cent of admissions of children under 12, and chronic appendicitis 3 per cent, or 161 cases.

An examination of the symptoms of previous attacks as exhibited in Table 1 indicates that the most prominent symptoms were indigestion and nausea, which occurred in 77 per cent of the patients, vomiting in 65 per cent, while a gastrointestinal upset was noted in 66 per cent. Loss of appetite occurred in 68 per cent, constipation in 50 per cent, diarrhea in 33 per cent, and colic was recorded in 43 per cent. It is worthy of note that 28 per cent had urinary symptoms and that 88 per cent had had previous attacks.

Table 2 tells the story of the present attacks. The chief symptoms were the triad of pain, nausea, and vomiting. Pain

\* I am indebted to Dr. Thomas H. Russell, Director of Surgery and to Dr. Adolph G. De Sanctis, Director of Pediatrics for the use of material.

TABLE 3—PHYSICAL SIGNS

	Percentage
Tenderness	83
Rigidity	0
Rebound tenderness	0

occurred in 91 per cent, nausea in 76 per cent, and vomiting in 57 per cent. Changes in bowel movements were noted, in that constipation existed in 45 per cent and diarrhea in 13 per cent. Again dysuria was a surprisingly prominent symptom, being found in 29 per cent.

The one and only physical sign was tenderness over McBurney's point, present in 83 per cent, as shown in Table 3. In no case was there any rigidity or rebound tenderness.

TABLE 4—GASTROINTESTINAL X-RAY

	Percentage
Tenderness (under fluoroscopy)	45
Irregular filling	44
Pylorospasm	37
No visualization	41
Delayed emptying	41
Ileal stasis	41
Fixation of the cecum	22

In Table 4 are the valuable findings of the gastrointestinal x-rays, which were taken in 41 cases. Under fluoroscopy, tenderness was elicited in 45 per cent. The matter of the filling and emptying of the appendix, as of the gallbladder, has diagnostic importance. There was irregular filling in 44 per cent, delayed emptying in 41 per cent, and no visualization in 41 per cent. Referred signs were shown in pylorospasm, which occurred in 37 per cent and ileal stasis in 41 per cent. In 22 per cent there was fixation of the cecum.

In Table 5 are the changes in the appendix noted at the operating table. Seventy-three per cent were infantile—that is, of abnormal length. Sixteen per cent were retrocecal, and 9 per cent retroperitoneal in whole or in part. A distended tip was present in 31 per cent, adhesions in 30 per cent, a short mesentery in 24 per cent, there was scarring in 12 per cent and an abnormal cecum in 2 per cent. Here are found a number of the predisposing anatomic causes leading to poor drainage and obstruction, that is,

great length, poor position, adhesions, and short mesentery.

The findings of the pathologist are reported in Tables 6 and 7. First the macroscopic, an elongated specimen in 72 per cent, a narrow lumen in 47 per cent, fibrosis in 36 per cent, injection in 44 per cent, fecaliths in 24 per cent, and feces in 54 per cent. Twenty-four per cent showed

TABLE 5—ANATOMIC CHANGES AT OPERATION

	Percentage
Infantile	73
Retrocecal	16
Retroperitoneal	9
Distended tip	31
Adhesions	30
Short mesentery	24
Scarring	12
Abnormal cecum	2

mesenteric adenopathy, and it is noteworthy that 14 per cent contained *Oxyuris vermicularis*.

The microscope showed the following evidence of irritation: lymphocytes 76 per cent, mononuclears 29 per cent, edema 38 per cent, and congestion 64 per cent. As evidence of infection, polymorphonuclear cells were found in 45 per cent and connective tissue in 25 per cent.

If there is such an entity as chronic appendicitis in children, the follow-up course of these patients should prove our contention. Eighty-nine per cent of the cases have been followed and most of them for several years. There was a 67 per cent of cures in that all preoperative complaints were entirely relieved. In 3 per cent there was a mistaken diagnosis, as for example,

TABLE 6—MACROSCOPIC FINDINGS

	Percentage
Elongated	72
Narrow lumen	47
Fibrosis	36
Injection	44
Fecaliths	24
Feces	54
Mesenteric adenopathy	24
<i>Oxyuris vermicularis</i>	14

TABLE 7—MICROSCOPIC FINDINGS

	Percentage
Irritation	
Lymphocytes	76
Mononuclears	29
Edema	38
Congestion	64
Infection	
Polymorphonuclears	45
Connective tissue	25

TABLE 8—FOLLOW UP

	Percentage
Cures	67
Symptoms persist	19
Mistaken diagnosis	3
Lost track of	11
Total cases—161	100

hydronephrosis. We lost track of 11 per cent of the patients. In 19 per cent some or all of the symptoms persisted, and these were considered failures (Table 8).

The influence of this study is shown in Table 9, which gives a tabulation, year by year, of the percentage of acute and chronic appendicitis cases in children. Approximately the same number of cases has been operated upon each year, but there has been a definite shift to a greater percentage of chronic cases, with a consequent diminution in mortality. In 1928 and 1929, 20 per cent were chronic cases and 80 per cent acute cases, while in 1933

TABLE 9—YEARLY EXPERIENCE

Year	Percentage Chronic	Acute
1928	20	80
1929	20	80
1930	46	54
1931	40	60
1932	45	55
1933	60	40
1934	42	58
1935	58	42
1936	44	56
1937	48	52

60 per cent were chronic and 40 per cent acute, subsequent years having an equal number of chronic and acute cases.

### Conclusions

1. Chronic or formative appendicitis exists as a disease entity in children.
2. Operation for appendicitis in the chronic or formative stage carries little risk of mortality.
3. A series of 161 operations for chronic appendicitis in children is reported with a zero mortality, a cure conservatively estimated at 67 per cent, and a persistence of symptoms of 19 per cent.
4. The best assurance of a correct diagnosis of appendicitis in the chronic or formative stage in children is a thorough examination by a general prac-

titioner or pediatrician, surgeon, and roentgenologist to eliminate all other possible causes of the symptoms, before the appendix is considered to be the source of trouble. The surgeon should become pediatrically minded and the pediatrician surgically minded in dealing with children who complain of stomach ache.

5 East 53rd Street

### Discussion

Dr J. Sutton Regan, Buffalo—Dr. Denneen's views on chronic appendicitis in children are in agreement with mine. We have reviewed at the Buffalo Children's Hospital 90 cases of chronic appendicitis in children with an adequate follow-up ranging from six months to five years and the results obtained are substantially the same as those reported by Dr. Denneen.

Our study was undertaken because the thought was prevalent among pediatricians that chronic appendicitis in children did not exist as a clinical entity and that a number of appendices were removed under this diagnosis when in reality some other condition was present. Therefore we investigated our cases and submitted them in our follow-up to a very rigid scrutiny every case being seen personally. The results of our investigation definitely proved as Dr. Denneen's results also prove that chronic appendicitis does exist as a clinical entity. Also we believe that many cases diagnosed by our medical confrères as acidosis, cyclic vomiting and visceroparalysis are in reality cases of chronic appendicitis. Close investigation of the history bears out the fact that many of these patients have had repeated attacks of pain and nausea and vomiting diagnosed as cyclic vomiting and so forth which attacks have disappeared entirely following the removal of a chronically irritated appendix.

The results of our series are as follows: 78 per cent were between the ages of 9 and 15, while 22 per cent were between 4 and 9 years of age. Peculiarly enough almost three-quarters of the cases occurred in girls. Ninety-eight per cent of the patients had right lower quadrant pain with or without nausea and vomiting and 25 per cent had associated epigastric pain. Dr. Denneen states that 91 per cent of his cases had abdominal pain. One hundred per cent of our cases had varying degrees of right lower quadrant tenderness on palpation whereas Dr. Denneen showed 83 per cent. I realize that right lower quadrant tenderness in 100 per cent of cases is higher than reported by other observers and I can give no adequate explanation for our figure. I do know that I personally examined over 60 per cent of



these cases and can state that it was definitely present. Adequate follow-up showed that 78 per cent had absolute cures and 10 per cent were improved, giving a total of 88 per cent benefited by appendectomy. There were 12 per cent of failures in our series. Careful analysis of the failures revealed some startling disclosures, in that all of the improved cases and 80 per cent of the failures had typical symptoms of chronic appendicitis. Eighty per cent of the failures were in girls 14 to 15 years of age, and 50 per cent of these latter were found to be definite mental defectives, as proved by intelligence quotient studies in the hands of a competent psychiatrist.

As to the diagnosis of chronic appendicitis in children, we believe the most important point is adequate history. In our opinion, repeated attacks of abdominal pain, either epigastric or right lower quadrant, in most cases being associated with nausea and vomiting, are most probably due to an irritation of the appendix. Dr Denneen's study shows that 88 per cent of his cases had recurring attacks and I wish to put particular emphasis upon this fact. Many of our cases also gave a history of loss of appetite with their attacks, which may be interpreted in children as meaning nausea. We have not found the x-ray to be of great benefit to us as an aid in diagnosis. It should be used if the history is atypical and if it is felt necessary to rule out some other condition.

I wish to repeat that, in my opinion, chronic appendicitis is a definite clinical entity in children and that I can thoroughly agree with the points brought out by Dr Denneen. I believe that any child having attacks of right lower quadrant pain associated with nausea and vomiting should be regarded as a possible chronic case and should have an appendectomy if medical measures in the hands of the pediatrician fail to bring about a cure. Furthermore, I believe that repeated attacks of appendicitis are apt to result in a mechanical obstruction to the appendix, either due to adhesion bands or fecalith, and that such appendices are more apt to become involved in an acute process than previously uninvolved appendices. Thus, by removing chronic appendices we may be able to lower the mortality in ruptured appendicitis with diffuse peritonitis, which is now so appallingly high.

Dr Edward W Peterson, *New York City*—In the opening paragraph of Dr Denneen's paper he says that in 245 cases of acute appendicitis there was a mortality of 35 per cent in those with perforation and spreading peritonitis, but that for the full series the mortality was only 5 per cent. This is a creditable showing, when it is

considered that a number of different surgeons performed the operations. It emphasizes again two facts: (1) that the early recognition and prompt surgical treatment of acute appendicitis give almost uniformly good results, even in infants and children, and (2) that delay in the diagnosis of this disease, or in instituting surgical treatment, accounts for the high mortality and the distressing morbidity in young subjects. Incidentally, purgation and procrastination are responsible for most of the bad results.

In the group of chronic appendicitis cases<sup>†</sup> studied there was no mortality in 161 cases subjected to operation, and of this number 67 per cent were cured, 19 per cent had persistence of symptoms, and 14 per cent could not be traced. The figures are better than they appear at first glance, for prophylactic appendectomy relieved 161 young patients entirely of any possible risk of appendicitis mortality.

Over a period of years of pediatric surgical practice, the speaker has noted, when operating for abdominal conditions other than appendicitis, how frequently the appendix will show definite macroscopic evidence of disease. Defects of the mesoappendix, extrinsic and intrinsic strictures of the appendix itself, malpositions of this vulnerable, vestigial structure, adhesions, bands, folds, and membranes, causing greater or less deformity of this organ—have been observed and recorded repeatedly. We know that anything that interferes with the circulation and with the in-and-out mucus-fecal current of the appendix may cause functional and reflex disorders, and we are confident that these mechanical obstructive lesions predispose to infection and are the forerunners of many of the attacks of acute appendicitis.

We believe that appendicitis or appendicular irritation, which may cause reflex spasm of any part of the gastrointestinal tract, is one of the causes of intussusception in infancy and young children. Most surgeons at some time or other have encountered acute appendicitis associated with right inguinal hernia. In a child, appendicitis should be suspected when a right-sided inguinal hernia gives subjective symptoms of any kind. So frequently are hernia and appendicitis associated that this combination cannot be dismissed on the grounds of coincidence. It is the exception to find a normal appendix in a child who has had a hernia, unsupported by a truss, for any considerable period of time. Mesenteric adenopathy was noted in 24 per cent of Dr Denneen's cases. In our experience, in a study of this group of chronic cases, disease of the mesenteric lymph glands of the ileocolic angle will be found, if looked for, in over 80 per cent of

the cases. This adenopathy causes low grade symptoms (which we have not time to consider now) but all symptoms as well as the glands themselves disappear on many occasions after an appendectomy. Further we have seen in instances of indigestion-colic, gastrointestinal upsets, acidosis attacks, allergic manifestations cyclic vomiting colitis, etc. relieved by the removal of a chronically crippled appendix.

In conclusion, we are willing to grant that the appendix disorders that we have in mind are

more often reflex and mechanical than inflammatory in the true sense of the word. However, when pediatricist, surgeon and roentgenologist get together correlate all of the clinical and laboratory data and bring in an indictment against the appendix then its removal should be advocated.

Just one more word—I would like to see that group of skeptics forever silenced who think it is smart to say that there is no such thing as chronic appendicitis.

### SOCIALIZERS TAKE NOTICE

Coming as it does in New York County probably the most liberal in the country the three-to-one vote against compulsory sickness insurance should convince state and national legislators that medical opposition to this system is real and well founded declares the *New York Medical Week*. Professional competition is very intense in Manhattan, where there is a high concentration of physicians. Moreover a large proportion of the population is treated in hospitals and dispensaries without any financial return to the medical profession. If obligatory insurance really offered economic security to the practitioner and high grade medical service to the public, physicians would jump at the chance to remedy existing unsatisfactory conditions.

The referendum in New York County refutes the charge that opposition to compulsory health insurance is imposed on the rank and file of the profession by the leadership of the A.M.A. The Medical Society of the County of New York is one of the most democratic in the country. It encourages free expression of minority opinion in its journal and on the floor. Its delegates have never hesitated to urge the views held by its members upon the A.M.A. even when those views diverge from long standing A.M.A. policies.

On the subject of compulsory health insurance there is no difference of opinion between A.M.A. leadership and the profession at large. Physicians in all parts of the country in all branches of practice in all economic strata oppose obligatory insurance because the experience of other countries has demonstrated its deleterious effects on professional initiative and responsibility and the standards of medical care.

### HAVE YOU EVER WORRIED ABOUT A DOCTOR'S HEALTH?

We called at the home of a doctor one evening recently. He had been out for several nights. Early in the evening the doctor had dropped sound asleep on a davenport in the living room—sleeping the sleep of the exhausted. We apologized and suggested that we would call another time when the phone rang. He arose as in a trance and walked over to answer it. 'Yes yes some temperature? well, I'll be over right away.'

Slowly he turned around. He stared at us, rubbed his eyes and said, 'Hello when did you come?' The man was hardly awake as he hustled into his hat and coat and with an apologetic 'I'll be back in a little while,' he left for the home of some sick person.

Do you ever worry about your doctor's health? That isn't as ridiculous as it sounds. He may be rigid in his dictates about how you shall protect your health, he may prescribe an exact routine which will prolong your years but, he is absolutely and almost criminally careless about his own health. He has schooled himself to forget his own well being to protect yours. He jeopardizes the future of his own wife and children to watch over yours.

'Yes' you reply 'but isn't he paid for it?' Is he? Doctors are short lived. Their average expectancy of life is the lowest of the professional groups. They are valuable men in every community. We are not sure there is anything we can do about this but recognize it—and appreciate it. If socialized medicine and surgery becomes the rule, as some reformers would have it we then would appreciate the family doctor.

—Lapeer County Press, Michigan

# BROMIDE INTOXICATION

ALBERT G. ODELL, M D , Clifton Springs

**I**N 1826, Balard discovered bromine. It was only a short time after the isolation of this element that bromide was suggested for use by the medical profession. Fifteen to twenty years later its use was quite general, and at the present time bromide has the approval of several generations of medical practitioners for such patients as need a sedative and relaxant. Indeed, until the introduction of the barbiturates, it was the chief reliance in such conditions. It was almost universally used in epilepsy until displaced by phenobarbital (luminal) and dilantin.

The principal action of the drug is a depressing one on the central nervous system, especially on the brain and medulla. Because of this it has been found most valuable in states of nervous tension with attendant anxiety and insomnia, and in epilepsy and kindred states. It is readily absorbed and appears in the urine shortly after its ingestion. Solis-Cohen and Githens state: "Elimination begins almost at once, traces being found in the urine within five minutes after swallowing a small dose of sodium bromide, the greater part being eliminated within two days." The rate of excretion is so slow that the presence of bromide in the urine has been reported one year after the use of the drug was discontinued. Usually the amount in the blood and urine is small within three to four weeks after its discontinuance, especially if proper treatment has been given. It has been detected in the spinal fluid as well as in the blood serum and the urine.

There is a very definite balance between the bromides and the chlorides of the body, the sum total of the two being a constant. Chlorides are excreted by the kidney in preference to bromides.

As the level of bromide rises, in the same proportion that of the chloride falls. Normally the bromide content of the blood serum is low, from 0 to 3 or 4 mg, but as will be noted later, the bodily economy will tolerate considerably more than this before rebelling and before symptoms of intoxication appear.

Pioneer work in developing a test for the presence of bromide in the blood serum and other fluids was done by Walter and Hauptman, but their method was not adapted to rapid and easy determination. Wuth, somewhat later, brought out a more easily applied modification of their test. Since then a keener interest in the problem has been evinced and the bulk of the studies date from Wuth's time. This test is comparatively simple. The protein of the urine or blood serum is precipitated out by the Folin-Wu method or by trichloroacetic acid. The filtrate is treated by animal charcoal and again filtered. To this is added 0.5 per cent of gold chloride solution. The presence of bromide is shown by a golden yellow to brown color. For estimation of the amount present, definite amounts of the solutions are used and the final solution is compared with a series of solutions of known strength. Comparimeters as suggested by Wuth are on the market.

As the drug came into more popular use, it was found that in most patients under average dosage, and in susceptible people under small dosage, an acne appeared. For many years this was thought to be the only toxic symptom produced by bromide, but in Duke University Hospital, where 50 cases of bromide intoxication were treated, only 2 per cent showed an acne.

There are many physicians today who are apparently unaware that very definite mental symptoms are produced by

wise or unchecked use of bromide. This paper is addressed to that group in the hope of making them realize that while bromide is a most useful and helpful drug, it does have its dangers. This unawareness is probably due to the fact that because the symptoms are predominantly mental, most of the cases are seen in psychiatric hospitals. Just how frequently mild cases occur in private practice is an open question. When general practitioners become increasingly aware of this phase of bromide reaction, there is no question that a larger number of cases will be reported.

The symptoms develop insidiously. In fact they are so similar to those for which the drug is given that the physician is often unaware that anything is happening until the damage has been done. They depend on the stage in which the patient is seen. For the most part they are mental and differ in degree rather than kind. They have been arranged into stages. This is well if one keeps in mind the fact that the stages shade one into the other with no well defined line of demarcation.

In the early stage, drowsiness, retarded and blurred speech, together with slowing of movement and mental processes are usually the initial symptoms. Thinking is difficult and memory is poor. The word 'sluggishness' covers this phase. There is a diminution of reasoning power and discrimination. Usually the patient is well oriented and shows no hallucinations. If the drug is stopped at this point and proper treatment instituted, these mental symptoms due to the bromide will clear up in one to two weeks. If, however, the condition is not recognized, the symptoms mentioned grow more pronounced. Drowsiness may become more apparent, all mental processes more slowed, and the patient will show the symptoms of profound toxicity or insomnia with restless irritability may replace the earlier drowsiness and lethargy. Food and fluids may be refused and with their refusal dehydration and a foul breath are apt to occur. There may be constipation, anorexia

and weakness. Dizziness may be present in some cases. The patient becomes disoriented, and a mental confusion and delirium are seen. Hallucinations, usually visual, in which trees, flowers, men, and animals are described, annoy and disturb. There is a certain element of fear and anxiety practically always in the picture. Indeed the fear element is an outstanding characteristic of the delirium, which is of the restless confusional type. Delusions of a persecutory nature have been seen. Instead of the above there may be disorientation with little or no delirium.

With these mental symptoms go changes in the physical picture. The sensory changes are variable and the results of examination are unsatisfactory because of changes in the patient's sensorium and his inability to correctly answer questions. Frequently the abdominal reflexes are absent. The deep reflexes are variable in their response. The gait is apt to be ataxic, and ataxia and incoordination may show in the use of the hands. The station is unsteady and a positive Romberg is noted at times. Speech is thick and blurred. Tremors of the facial muscles and of the hands, fingers, and tongue may be observed. The pupils are often irregular and sluggish in their reaction to light and accommodation. The face may be pale and somewhat expressionless, the tongue coated, and the appetite impaired. Due to the dehydration, fever is sometimes seen. In some severe cases the patient may be incontinent, as occurs in general paresis. It should be kept in mind that all of these symptoms do not occur in every case, but that all have been seen at different times in different patients. The general picture is one of toxic delirium, especially in the later stages.

As there are no clinical signs or symptoms that are peculiar to bromide intoxication, and as the symptoms seen are those met with in most toxic psychoses, the final diagnosis rests on three factors. These are (1) the presence of toxic symptoms as outlined above, (2) the finding of an increased bromide content in the blood serum, and (3) the

disappearance of the symptoms following the discontinuance of bromide and the use of sodium chloride. Because the symptoms of bromide intoxication may be superimposed on a previous mental state, one should compare the present symptoms with those seen before bromide was first given, if that date can be ascertained. Often the only clue will be that on such and such a date the patient was given a "salty tasting" medicine or began the use of some proprietary sedative. A sudden exacerbation of the symptoms may help in the diagnosis. A history of recent or sudden clouding of consciousness or confusion is helpful. Because organic nervous disease, such as brain tumor or paresis, etc., may be simulated by this condition or may even be present in addition to it, careful neurologic examination should be made.

The treatment is simple and usually very satisfactory. Stop the bromide at once. Kingsley cautions that adverse symptoms may occasionally appear with the sudden withdrawal of the drug and that in such a case gradual reduction in the dosage may be necessary. This is rather rare, as the average patient soon shows signs of improvement. Sodium chloride, 3 to 6 Gm (45 to 90 gr) per day with at least 4,000 cc of fluid is the next step. A high caloric diet rich in vitamins should be given. Intravenous saline should be used only in the severely dehydrated patient and then very cautiously. Proctoclysis, using salt solution, can be resorted to if needful. Chemical sedatives are inadvisable. Control any excitement by cold sheet packs or prolonged tub baths. If the patient cannot take the sodium chloride in gelatin capsules, give it in enteric coated tablets. The average case responds well to treatment in three weeks and the less severe ones much sooner. One might argue that if sodium chloride is the curative agent, why would not increased amounts given with the bromide prevent an intoxication? The answer to this question is that a certain degree of concentration of bromide in the blood is necessary to

efficient action. Therefore, anything that tends to prevent this concentration defeats the purpose for which the bromide is given. Prevention consists in not allowing the concentration to reach a harmful level.

Bermuti states that a 40 per cent replacement of blood chloride by bromide is fatal to rabbits. Deaths due directly to bromide are rare, but it greatly reduces the resistance of the patient and thus renders him more liable to intercurrent disease.

The prognosis in bromide intoxication is good. Practically all cases recover. Many, however, recover from this intoxication only to have the original condition show itself, or, with the fading out of the bromide symptoms, to have the presence of an unsuspected mental state, such as an involutional depression or a schizophrenia, come to light.

After such an indictment as that just given, when is one justified in using bromide? It is a drug for temporary use, especially in menopausal syndromes, sexual excitability, anxiety and tensional states, and the like. While the barbiturates, especially phenobarbital, have largely usurped the place formerly held by bromide, it is still a very useful medicine if properly safeguarded. In using this time-honored drug, not only is the physical and mental trouble that may accrue from an intoxication (and that is bad enough) to be envisaged, but the social aspect as well. This is aptly illustrated by Mr. A., who developed a cardiac condition, and in connection with it and a period of overwork and mental strain, showed rather marked nervousness and anxiety. A physician was called who prescribed a bromide solution and went on a vacation. A short time later a second physician was called because Mr. A. had "gone crazy." He was delirious and disoriented, and commitment to a mental hospital was deemed advisable. Here a blood bromide of 325 was found. Under proper treatment, the psychosis promptly cleared up and when seen by the writer the cardiac condition was all that remained.

to be treated. This man and his family went through the experience of his developing a psychosis and of being committed to a hospital for the insane with all the stigma (unjust of course!) that such committal entails—all a needless experience. In addition, there was the financial burden placed upon the family exchequer. A little care and watchfulness would have prevented this illness.

Because some patients develop an intoxication, either from idiosyncrasy or unwise administration, is no reason for abandoning the administration of so useful a drug as bromide. If it were the use of the various opium preparations and other habit-forming medicaments would have to be discontinued for the same reason. Judgment in prescribing the drug must be used. Beware of telling the patient to keep on with the salty medicine indefinitely. Find out from your patient how much salt is being used. See whether your patient is taking medicine from other sources. He may be using some proprietary preparation or medicine given by the physician who saw him previous to your coming on the case. If the patient seems to grow more nervous, instead of increasing the size of the dose, discontinue it and test the blood serum for bromide.

Bear in mind that the danger of intoxication is diminished by a generous sodium chloride intake and enhanced by malnutrition, cachexia, and dehydration, in which the chloride content in the body is lowered. Impaired renal function and edema of cardiac or renal origin should make the physician cautious in its use. Nephritics and elderly people, probably because of the arteriosclerosis that is apt to be present, together with patients suffering from organic neurologic or psychiatric disease, do not stand bromide well, nor do chronic alcoholics or persons of unstable temperament. Its use in toxic or infectious delirium is contraindicated. Here, as in severe excitement or agitation, hydrotherapy by way of prolonged tub baths and cold sheet packs or the administration of paraldehyde are more useful. Patients

with organic cardiac disease do not stand bromide as well as those with a sound cardiovascular system. It has been noted that schizophrenics develop this condition infrequently, one reason assigned being the fact that they show a high resistance to delirium from any cause.

In this connection the question of deterioration from the continued use of bromide is always a source of discussion, this being especially true when used in the treatment of epilepsy. Paskind's conclusions made after rather exhaustive study and reported in 1934, are about as follows: "What is often taken for deterioration is quite apt to be intoxication, and the physician has failed to distinguish between the two. The epilepsy and not the bromide is at fault and in most cases there would be deterioration even had no bromide been used. The behavior disturbances antedated the use of the bromide and had not been noted or had been disregarded. Of 50 private patients adequately treated in periods varying from one to seventeen years, only 3 (5½ per cent) showed any deterioration. It is also a fact that most of the statistics come from institutions where the most severe cases are sent and in whose patients deterioration would therefore be most likely to occur. It would appear that bromide can be safely used in the treatment of epilepsy if the patient is watched and is under proper control.

Which preparation of bromide is the least harmful? As it is the bromide that causes the trouble and not the preparation, the only difference is in the fact that some forms seem to be less irritating to the stomach than others. Potassium bromide is probably the most irritating form and strontium bromide the least.

Opinions differ as to a safe total for a twenty four hour dosage and as to the point of concentration at which a given patient will begin to show symptoms. It is a strange fact that some patients will develop symptoms from a much smaller bromide concentration than others. The

factors making for this are complex and not well understood. It may be due to fundamental variations in the individual. More cases occur among the unstable, emotional, nervous psychoneurotics than among other types of patients perhaps because they are inherently unstable and more likely because so much more of this drug is used in the treatment of patients in this group. In the abnormally sensitive (and who these may be there is no way of determining beforehand) even a small amount will be dangerous. The safe dosage given by different observers varies from 15 to 30 gr (1 to 2 Gm) up to 60 to 90 gr (4 to 6 Gm) in twenty-four hours. But for emergencies much larger doses may at times be given. In these large doses it is always well to check the blood serum frequently. The same rule is advisable when using smaller doses for any length of time. As to the level at which one sees symptoms appearing, 150 mg is the lowest level usually accepted, the average being at 200 mg. Here again the condition of the patient is a large factor. I have seen symptoms at a level of 65 mg in an arteriosclerotic 73-year-old female with an auricular fibrillation. The greater the age, the lower the level at which one may look for symptoms. "At 50 years of age 150 mg is far more dangerous than at 22 years of age." In some patients 275 to 350 mg may be present and no trouble occur. Most observers ignore levels of 100 mg or less, but I feel that in certain individuals, as in the one cited above, symptoms of mild confusion, restlessness, and irritability may occur at levels lower than 100 mg. The relation of the time when the patient is seen and the time when the drug was discontinued also plays its part. If, as in 2 of the cases reported below, a period of two weeks or more has elapsed, the reading will be lower than when the symptoms first appeared.

Cases illustrating some of the statements made together with brief comments on them are here presented.

Mr H, 52 years old, was admitted because of difficulty with vision. A history of long use of alcohol and tobacco (smoking and chewing) made possible a diagnosis of toxic amblyopia, but did not explain cloudy mental processes, ataxia, unsteady gait, and visual hallucinations in which flowers, trees, and the like appeared about him. A central nervous system disease was considered because of the confusion, the difficulty in walking, and the blindness. The blood bromide was 106. Sodium chloride was started. In five days, the bromide was 57.5 per cent, in thirteen days it had dropped to 32.0 per cent, and in twenty-five to twenty-seven days to 14.0 per cent. Coincident with the drop in bromide came a clearing of his mind, a disappearance of the difficulty in walking, and the statement that a few weeks before he came under observation a doctor had given him a salty tasting medicine. This had been stopped two weeks before his admission when a second physician was called.

This suggests that one cannot accept the first reading as the high one, for the drug may have been stopped for some time before coming under treatment, it also suggests the fact that the symptoms of bromide intoxication may simulate central nervous system disease.

Miss H, 73 years old, original diagnosis was arteriosclerotic cardiovascular disease. Because of sleeplessness, nervousness, and irritability she was placed on a preparation of bromide and chloral. In a short time there appeared signs of confusion and disorientation. The blood bromide was 65.6 and because of this the bromide solution was discontinued. Within a short time the confusion and disorientation had disappeared.

This case illustrates the point that some patients, especially elderly persons with arteriosclerosis, may show symptoms with a bromide content of less than 100—65.6 in this case.

Mr W, 55, an insurance broker. "It's the mental side of the case which disturbs me. I become so easily discouraged and disheartened. I cannot concentrate on my work. I can't figure out an insurance proposition without getting all balled-up. I feel weak." His color was bad, and there had been numbness and prickling in his hands and feet for three to four months. He was very cloudy mentally. His ideation and speech were slowed and he was

incapable of understanding statements made to him. It did come out that for two to three years he had been taking Bromo-Seltzer six to eight times per day. The blood counts did not show the typical picture of a pernicious anemia but were low. The bromide was 169. Under sodium chloride, forced fluids and increased food intake in six days the reading was 96.8 in fourteen days 30.6 and in twenty three days 28.8. He lost much of his confusion in two weeks and by the time he left for home he was clear alert and could comprehend statements made to him and his blood count was normal.

This shows the danger of self medication. He was toxic from both bromide and acetanilide. The former produced the confusional state and the latter the anemia.

Major M. 55 years old a retired army officer was sent to the clinic because of shortness of breath and some mental symptoms. He was found to be mildly confused slightly irrational and very fearful. A bad cardiac condition was present. It was thought at first that he was confused because of a toxicity related to the cardiovascular disturbance. It came out shortly that for some time he had been taking a salty tasting medicine, but not immediately previous to his admission to the clinic. The bromide reading was 129. Because of the cardiac condition no sodium chloride was given. Three to four days later the bromide had dropped to 44.4 and with the drop had come considerable improvement in his mental state. He conversed clearly and rationally and the fear disappeared. From then on he could be treated for the cardiac disease.

This short case history illustrates the danger of using bromide too freely in cardiovascular disease per se and how easy it is, unless the attending physician is on the alert, to assign an incorrect cause for a toxic state.

### Conclusions

1. A certain percentage of patients taking bromide will develop symptoms of intoxication.

2. Contrary to the usual belief, acne is not the first indication of bromide intoxication in a very large proportion of cases.

3. Symptoms of intoxication occur at levels less than 150 to 200 mg. per 100

cc of blood serum (the mark usually accepted as dangerous). It is these early symptoms of drowsiness and sluggishness that should warn the physician and should lead to an estimation of the bromide content of the blood.

4. The treatment is simple. Stop the bromide, administer sodium chloride, force fluids, and give a high caloric diet rich in vitamins.

5. The prognosis is usually good.

6. Bromide is a safe drug for prolonged administration if its use is properly safeguarded by examination of the blood serum at regular intervals and provided the physician keeps in mind the fact that symptoms may occur at a level of 100 mg. or less in certain patients.

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### Discussion

Dr George Kirby Collier, Rochester—Dr Odell has discussed a very important subject. Since its first introduction in medical therapy by Laycock in 1857 and its use by Radcliffe and Hughlings Jackson in 1804 at the National Hospital for Paralysis and Epilepsy the bromides have been used indiscriminately and many times without any rhyme or reason. The doctor has considered the bromides as a sedative and pushed their dosage to any limit to get what he thought the desired effect—quietude—many times giving but little attention to the masking of symptoms of some underlying physical or neurologic condition. With the introduction of the barbiturates and other sedatives, we find their indiscriminate use to a degree comparable to that formerly found with bromides. Much of the discredit heaped upon the bromides as shown by Dr Odell has been due to the unguarded manner of its use. Dr Odell mentions With a method in ascertaining the bromide blood content and its simplicity in practice.



In his studies, Wuth, and even at an earlier day, Ulrich of Zurich, brought out the fact that the average person of 150 pounds body weight could not take up more than 45 gr per day over any period of time without definite manifestations of bromide poisoning. Ulrich's studies were made on the epileptic, and as a result he devised a combination of the bromide and chloride elements in the form of a bouillon cube, containing about 11 Gm (15 gr) of NaBr and 1 Gm (1 gr) of NaCl.

In my experience I have seen but few patients showing even a mild acne or intoxication when this has been used with any degree of care. In the prevention of bromism, we frequently have our patient take salt baths. We have used sodium bichlorate in 5 to 15 gr doses in association with bromides and with phenobarbital, and as yet have seen no bromism result. I agree with Dr Odell that we have a most useful drug in the bromides, but as in much of our therapy the tendency is always to overdo, "if a little is good a whole lot will be better." We are finding today, instead of bromides, the cases of barbiturate poisoning, even at higher levels than we did of the bromides. Patients come to us who are taking phenobarbital purchased at drug stores, in varying doses, usually having started in with a  $\frac{1}{2}$  gr. As in the bromide cases, all degrees of drug intoxication are found, according to the individual equation.

Dr Odell has sounded a word of caution, as has been done so often in the past, warning us of the dangers of the bromides. It is not within this group that this word of caution should be sounded, but to the general practitioner. It is

among them that we find so much of the abuse, among the doctors who order bromides, which the patient continues to use over long periods.

Would it not be well if Dr Odell's paper could be read before groups of the general practitioners?

In conclusion, permit me to thank Dr Odell for bringing up this old subject of importance to us all and for stressing the values of bromide therapy, as well as its limitations.

Dr Noble R. Chambers, Syracuse—Dr Odell has given you a very comprehensive study of the subject of bromide intoxication. I think it is particularly valuable for the general practitioner who is apt to use bromide and chloral. But how many of us, even members of the section on neuropsychiatry, have ever thought to have a serum bromide determination made?

Those of us who have done psychiatry are all familiar with the oversedated case—whether it be bromides, barbitals, or other sedatives. We are familiar with the so-called "sedative psychosis." In fact, overdoses of bromide were used at one time to quiet violent and untidy patients. I am sorry Dr Odell did not mention this work in his paper.

Although bromide intoxication can be produced rather easily, particularly in some patients, I believe we need not be too greatly alarmed, since we have such a ready antidote.

I believe it would be well, however, if patients realized how much bromine they were getting in some of the proprietary preparations available at any drug store.

I believe we should continue to use bromides without fear but with true scientific precaution.

## SECRETARIES AND SHEKELS

Tact means a lot in dealing with money matters, remarked a speaker at a state medical society meeting in Michigan in a talk on office secretaries.

An example of the benefits of correct psychologic approach to common everyday situations may be demonstrated in the conversation incident to accepting payments on accounts. All of you have had patients stop at your desk, throw down a dollar bill and say, "I'll be in again in a couple of weeks," a remark intended as just a casual comment indicating further pay-

ment if and when convenient. The really clever office assistant will turn this statement into a definite promise to pay in some such manner as this, and without ever asking for it. She will say, "all right, Mr Smith, I'll note that on your account. Let's see, that will be the 4th of October. (Noting it down.) Thank you very much indeed, and we'll look for you then." The result is that the patient has been courteously impressed with *his own* arrangement in so definite a manner that a letter can be sent him a few days later if the promise is unfulfilled.

# KIDNEY TUMORS

## Some Causes of Poor End Results

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(From the Departments of Urology and Pathology Massachusetts General Hospital)

IN 1925 Dr George Gilbert Smith of our staff reported in the *Journal of Urology* the end results of the cortical epithelial tumors that had been seen and operated on from 1900 to 1923. I have carried this work on and now wish to present the end results on this type of tumor from 1924 to 1935 and comment on two aspects of the subject (Table 1, page 1406).

In the first group there were 62 cortical tumors. Of these, 7 lived over five years, but 3 later developed metastasis, leaving only 4 that were living and well beyond the five year period. The second or last group consisted of 65 cortical epithelial tumors, 10 of which went beyond the five year period. Of these, 5 later developed metastasis, leaving only 5 patients living and well beyond the five year period. One fact is obvious when these two series are compared, and that is that the end results were no better in the last series than in the first, in spite of the fact that the operative mortality was higher in the first group and that our operative technic has advanced in the past years. Our experience with this type of tumor, with the exception of a few clinics in the country, is no better or worse than in most of the large hospitals from which large series of cases have been reported. This is a fact that I have ascertained by reviewing almost all the literature on the subject since 1900. One must remember that anywhere from 15 to 50 per cent of the five year cures reported probably die from recurrence after that period. Our knowledge concerning the behavior of these tumors has steadily increased since Wolcott in 1871 removed the first renal tumor surgically.

The operative technic has been more or less stabilized, the varied and oftentimes bizarre symptomatology has been duly stressed, the pathology has been adequately and fully described, but the reasons for our inability to make an early pathologic diagnosis and the histogenesis of this tumor have been some of the aspects that most authors have shied away from, and are the very phases of the subject that I wish to discuss today. Altogether too much emphasis has been placed on five-year cures.

The inability to make an early pathologic diagnosis is the *bête noir* of this disease. I wonder if we have been fooling ourselves in believing that an early clinical diagnosis indicates an early pathologic diagnosis. If that is so, nothing can be further from the truth. An illustration of this point is the case of a male patient of 38 who entered the hospital with a history of hematuria of three days' duration. The patient was perfectly well and on entry had not one ache or complaint. He was operated on and a moderate sized renal cell adenocarcinoma removed. The patient went four years and then developed metastases to the brain and lungs. Although the clinical diagnosis was made early, the pathologic process was fairly well advanced. It is true that renal tumor is diagnosed much earlier now than it was before the use of the cystoscope, yet a casual glance through the present-day literature on the subject will soon convince any skeptic that the great percentage of patients with renal tumor have a fair sized growth when first seen or operated on. This does not signify that there is an absolute relationship between the size of

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New York City May 11 1938



FIG 1 Small adenoma found at necropsy

the neoplasm and the ultimate prognosis, but it does give some indication of how long the process has gone on. It is fair to assume, I believe, that the longer the duration of the neoplastic process the larger it will be and the greater the chance for venous and glandular extension. In Bell's<sup>2</sup> series the incidence of metastasis seemed to be greatly increased when the growth was over 5 cm in diameter. I believe this to be a very accurate observation. The small renal tumors that are found at necropsy (Fig 1) are almost never seen at operation or diagnosed clinically. The reasons for this are obvious. They rarely give clinical symptoms and technically we have no means at our disposal to visualize them by x-ray. It would be ideal to make a diagnosis before these growths produce their characteristic deformities of the excretory portion and contour of the kidney on x-ray. It is precisely at this stage that operative cure could probably be effected in most cases. I say "most cases," for in some instances the lesion may be small and yet the patient may have diffuse metastases. Fortunately, this is not the rule but rather the exception.

The second factor that prevents early diagnosis is the very nature and insidiousness of the disease itself. The number of patients with renal cancers that fall into this group is not small and they defy the acumen of the best clinicians. This group presents no urinary signs or symptoms but is diagnosed clinically when the disease affects some other organs. I know of no tumor that can be as silent as

a renal tumor. Creevy<sup>5</sup> in a very excellent paper has recently rediscovered and illustrated this point. These patients may have presenting symptoms such as a cough, neurologic ailments, or gastro-

TABLE 1—END RESULTS IN CORTICAL EPITHELIAL MALIGNANT TUMORS OF THE KIDNEY

Yrs	No Cases	No Lived Over 5 Yrs	No Died of Recurrence After 5 Yrs	No Living and Well After 5 Yrs
1900-1923	62	7	3	4
1924-1935	65	10	5	5

intestinal disturbances. In 9 out of his 38 cases, Creevy found that the patients first sought his advice because of symptoms referable to the lungs, usually in the form of cough, pain in the chest, and hemoptysis. We have had cases in this series illustrative of this point. One, a female 50 years of age, was seen by her doctor for a cough of one year's duration. On physical examination she was found to have a large left kidney, and x-ray of her chest showed a metastatic nodule. There was no history of hemoptysis. It is extremely rare, however, to have hemoptysis due to a secondary metastatic nodule in the lung, whereas most of the primary bronchogenic tumors do produce hemoptysis. This point is worthy of note. Creevy states that "There is no doubt that a fairly high percentage of cases of renal neoplasm will continue to escape recognition until late in their course, not merely because patients are prone to delay medical consultation, and because the disease often produces syndromes difficult to identify, but chiefly by reason of the fact that the first symptom to attract a patient's attention is so often due not to the tumor itself but to local extension or metastasis. This was the case in 32.6 per cent of the cases in the clinical series, in 50 per cent of those in the autopsy series, and in 41 per cent of those in the whole group—a disconcertingly high proportion." This series, too, as with other large series in the literature, has its cases in which the diagnosis was made after metastasis had taken place. In case No. 40, a male of 67 developed an enlarged supraclavicular lymph node

and on biopsy this proved to be metastatic hypernephroma. In case No 18, a male (43 years of age entered with a chief complaint of constipation over a period of many months. He had no urinary symptoms but his abdomen was markedly distended. Physical examination revealed an enormous mass occupying the right upper quadrant and x ray showed metastases to his spine and lungs.

The literature in the past and present is full of such case records. Chukry<sup>7</sup> cites the case of a male, 50 years old, who during the act of defecation felt a sudden numbness of the arms and legs with a definite left hemiplegia. The patient had no symptoms at all referable to the genitourinary tract. At autopsy a renal tumor was found with extensive metastases to the brain, lung, mediastinal glands and to the myocardium. Johnson<sup>8</sup> cites the case of a negress 60 years of age who had a spastic paralysis of both legs of four days' duration with microscopic hematuria. Physical examination revealed a huge mass in the right lower quadrant (kidney cancer). Radumskajandova<sup>12</sup> and Barjon and Japiot<sup>1</sup> add similar cases with neurologic symptoms. Wodsack<sup>14</sup> included in his 54 cases a number of patients with extensive metastases and without any urinary symptoms. Metastatic skin nodules (Cochez and Busser<sup>4</sup>, Lubarsch<sup>9</sup>) extreme anemia (de Luma<sup>6</sup>), cough (Harvier and Lemaire<sup>7</sup>), pleurodynia (Shuman<sup>14</sup>), hoarseness (Turner,<sup>17</sup> Memzel<sup>16</sup>) may be the first symptoms of renal carcinoma. I recently operated on a patient whose first symptom was renal colic with hematuria, marked rigidity of the entire right side of the abdomen and collapse. Previous to this episode the patient was in perfect health and there was no history of trauma. At operation a large perirenal hematoma was found which evidently started from a moderate sized renal cell adenocarcinoma situated at the lower pole.

Simpson<sup>18</sup> cites an interesting case of a boy who was unable to move his leg due to partial collapse of the first and second lumbar vertebrae. A small renal tumor was removed which on microscopic ex-

amination proved to be a spindle cell sarcoma. The boy died a few weeks later and in his comment, Simpson stated:

Such a lamentable result after removal of a tumor, only four days after the first symptom, makes one wonder whether we are justified in telling the public that the cure of cancer is only a question of early diagnosis'. I believe we are justified in telling the public this if we forever keep in the back of our minds the thought that it is an early *pathologic* diagnosis that we seek and not an early clinical diagnosis. Another factor that is very disconcerting is that we have few, if any, early symptoms. Of course this is true with practically all types of deep seated cancer. Braasch once pointed out that hypernephromas usually grow slowly and in early stages cause few, if any, clinical symptoms. The classic triad of hematuria, tumor, and pain that are described in every textbook on renal tumors means very little as far as early diagnosis is concerned. Neff<sup>11</sup> stated:

A patient should be lucky whose kidney tumor causes bleeding in the early growth."

Hematuria is the one symptom which is so often referred to and stressed in the literature. Both the laity and the physician have time and again been told about the necessity for investigation when urinary bleeding is present. In fact, it has not been uncommon in the past to accuse the local physicians in small communities of not investigating a hematuria and thus making more possible an early diagnosis. I am strongly in favor of investigating every case of bloody urine but I am not so sure that this will increase the diagnosis of early pathologic lesions, especially of cortical tumors. We must remember that in order to have hematuria from a cortical tumor, the lesion has to extend into the renal pelvis or its appendages or produce bleeding by congestion of the subepithelial spaces as shown by Patch and Rhea.<sup>12</sup> In this series the urinary sediment was negative in a fair percentage of cases. By that is meant no erythrocytes could be found in the urine of these patients when they

entered the hospital. This does not necessarily mean that they did not have hematuria at some other time, but simply means that when they were first seen no red cells were found in their urine, nor did they give a history of hematuria. Gross hematuria was present in only a small group of cases. This is very significant. It may be that in this particular series the incidence of hematuria was low, but in the literature, report after report can be found where a fair percentage of the cases did not have macroscopic bleeding. In view of this last statement, how can anyone make an early diagnosis in these particular cases? The fact is that we do not, in a number of instances the growth was of fair size and the patient only recently complained of hematuria. Quite a number of cases presented hematuria as the initial symptom yet on physical examination a large tumor mass was present. (These cases were practically all in the parenchymatous group.) This shows very strikingly that the symptom, mass, or tumor, was not sufficient *per se* to bring the patient to the doctor but that the addition of hematuria did. Hematuria, although a fortuitous sign, as stated by Neff, does not necessarily mean an early tumor even though it is a presenting symptom and of very recent date. The patient who had one of the largest tumors in this series, had his first hematuria three days before death.

The value of tumor as a sign in the diagnosis of early kidney tumor is likewise small. Patients as a rule do not continually feel their abdomens for tumors and the chances are that when a mass is palpated, pathology has gone on for a good period of time. The growth probably has extended beyond the capsule or into the venous system. Of course there are exceptions to this rule, but in the main it must be conceded that the very finding of a tumor mass is against an early diagnosis. It may be an early diagnosis as far as the physician is concerned but it is not early as far as the pathologic process is concerned.

Pain as an early symptom, I believe to

be of extremely doubtful value. As it is a subjective symptom, it depends entirely on the individual's threshold for pain. Usually individuals with a slight degree of pain may carry on for a long period of time before they will consult a doctor. Invariably they hope that it will pass off and attribute it to some other cause. Fortunately most pains do pass off and no pathology is ever found, but only when the pain is severe or hinders their daily work will the patients consult a physician. Imagine every woman going to a physician because her back hurts. I am not so sure that the average physician would welcome such a practice. The symptom itself is so indefinite, and its only value in the diagnosis of renal tumor is when it is associated with hematuria.

We must then admit, from the foregoing, that the very nature of the disease and the lack of early symptoms makes the diagnosis of early renal cell carcinoma extremely difficult, and hence lessens the chances for a complete cure.

The second phase of this paper is the histogenesis of these cortical tumors. Dr. Edward Gaul, of the Pathology Laboratory of the Massachusetts General Hospital, and I collected 61 specimens containing 69 circumscribed lesions considered to be benign cortical epithelial tumors of the kidney. Nineteen of these were obtained from Dr. Shields Warren's laboratory at the Palmer Memorial Hospital, and 42 from the Massachusetts General. The lesions varied considerably in size but the majority were less than 5 mm in diameter. It is interesting to note that most of these tumors occurred in kidneys exhibiting evidence of relatively long-standing damage. Only 11 of the cases showed no histologic evidence of pre-existing renal disease. Six kidneys exhibited a severe grade of pyelonephritis and in 2 of them there was advanced diffuse glomerulonephritis. Forty-two in all showed varying grades of vascular nephritis with evidence of ischemic cortical scarring. These tumors fell into 3 distinct groups, namely the fetal adenoma (7 cases), cystoma and

papillary cystadenoma (47 cases), and the adrenal rests (7 cases)

I wish to discuss the largest and most common group, the papillary cystadenomas (Fig 2). The cystomas occur as simple multiloculated cysts and may remain as such throughout their existence. They may grow to rather large size. The majority arise in response to the effect of focal ischemia or obstruction of the parenchymatous elements. The lining epithelium of these cysts at this point in their development presents the appearance of normal proximal tubular epithelium. The cells are large, cuboidal, and contain round vesicular nuclei centrally placed within abundant granular eosinophilic cytoplasm. No distinct encapsulation or evident segregation from adjacent parenchyma is observed, a point strongly suggesting origin from pre-existing tubular tissue. With continued development, more and more papillary infolding occurs and is associated with frequent branching. Subsequent to the increase of intracystic substance, the cyst wall is necessarily expanded and adjacent parenchyma compressed.

In many instances this results in pressure atrophy of normal epithelium and replacement of fibrous tissue, so that apparent encapsulation results. This may be partial or complete. Capsular invasion frequently noted may be real or only apparent. More often it probably does not represent actual penetration of the capsule by an invasive process, but rather inclusion within the capsule of incompletely destroyed fragments of degenerating parenchyma. Increasing cellularity results in partial obliteration of acinar and cystic structure. The epithelial cells, although fundamentally unchanged, are compressed and the papillary processes tend to lose distinction. With progressive increase in cellularity, intense intercapsular compression and thickening of the capsule occur with ultimate obliteration of the vascular supply. Cellular degeneration follows and the adenomatous nodule takes on the appearance of a cholesteatoma. In many of the



FIG 2 Low power view showing a papillary cystadenoma

papillary cystadenomata, particularly those of the compact variety, vacuolization of scattered cells is apparent. This occurs in the central portion of the nodule, the very portion where nutritive penetration would be less. This vacuolization may go on to a point where the cells are indistinguishable from the clear cell hypernephromas, or Grawitz tumors. There were 12 of these so-called clear cell tumors or alveolar adenomas, 11 of which were encapsulated. This group of renal adenoma then starts as a benign, simple tubular cyst (cystoma), whose cyst wall gives origin to papillary buds and forms a papillary cystoma or a papillary cystadenoma. If vacuolization of these papillary processes occurs, the growth assumes the appearance of an alveolar adenoma. I hypothesize that these tumors may become arrested at any stage of their development or they continue to grow until they reach a large size, they may have varying rates of

growth, some more rapidly growing than others, they may become invasive at an early period in their development, or they may remain benign for a long period of time and sometime assume a large size. This is consistent with what we already know about the natural history of these neoplasms and would account for those cases where the first symptoms of renal tumor antedated the clinical appearance or the diagnosis of a tumor by many years, cases where a diagnosis was made by pyelogram or palpation of a mass and the patient went years before an operation was performed and a definite pathologic diagnosis made, cases where the diagnosis was made by exploratory operation or biopsy, or both, and the patient lived years afterward, and finally, cases where tumor thrombi were found in the renal vein and the patients lived for years without metastasis.

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### Discussion

Dr Frederick J. Parmenter, *Buffalo*—I wish to thank Dr. Crance for inviting me to open the discussion on Dr. Mintz's paper, of which Dr. Mintz was kind enough to furnish me with an advance copy.

In discussing this problem some repetition is unavoidable. However, I wish to call attention to several other points which have been of aid to me in the diagnosis of this condition.

A recent review of 40 personal cases of renal tumor confirms all that Dr. Mintz has said about the difficulties of diagnosis and the generally poor prognosis.

Renal neoplasms have the same degree of variation in their metastatic and malignant tendencies as tumors situated elsewhere. We occasionally see very small growths cause widespread and rapidly fatal metastasis, while others grow to large proportions relatively slowly and do not metastasize. It is in the former cases that the symptoms arising from the metastasis are usually the ones to first call attention to the disease. Dr. Mintz is quite right when he states the disease is far advanced when first recognized and that the textbook symptoms of abdominal swelling, pain, and hematuria are late ones.

The question then arises, can we improve our diagnostic acumen and thereby give the patient the benefit of an earlier diagnosis?

I feel quite sure a more careful systematic palpation of the abdomen on routine examination will reveal the presence of a mass before it has reached the extreme proportions some attain before recognition, and while late, to be sure, the smaller the growth the easier it can be dealt with surgically.

Also, a routine x-ray flat plate which shows good detail will frequently reveal an enlargement of the affected kidney when compared with the sound one.

Finally, with the ureteral catheter in place and where the growth connects with the collecting structures, Roman and I, a number of years ago, published a simple method of examining the urine sediment for tumor cells which when positive, revealed the type of new growth we were dealing with. It is also important to wash out the tip of the catheter, which may contain fragments of tumor, and thus furnish a biopsy. Many times the result will be negative, but when positive, the findings will be of the greatest value.

Pyelography undoubtedly has constituted the greatest factor in detecting renal tumors and Dr. Mintz has made a noteworthy contribution in this respect. I desire to re-emphasize what he has said about repeating the examination where a slight deformity is found, as the deformity may be due to blood clot and it is very important to rule this out.

It would seem unnecessary to call the profession's attention to the fact that the time to cytoscope the patient is during the hematuria and not after the bleeding has stopped, were it not that a considerable number of physicians for some unknown reason advise their patients to wait until the hematuria is over. This, in an

early case, may make the diagnosis impossible or very difficult.

Another problem presents itself when a mass is found—to allow nature to take its course feeling that surgery is useless or to at least explore the tumor and decide the method of procedure at the time of operation. There are several reasons in favor of the exploratory plan.

- 1 A biopsy can be made and many of these growths removed.
- 2 As temperature may be present in both hypernephroma and chronic renal infections operation may be the only means of differentiation and if inflammatory cure the patient.
- 3 Bailey and Harrison in the *Journal of Urology* December 1937 report 5 benign renal neoplasms 4 of which were successfully removed by surgery.
- 4 Dr Mintz has traced the group of benign tumors through their transitional stage into malignant ones. Cer-

tainly if this group can be recognized before malignancy takes place, a cure is practically certain.

A word about the benefit of preoperative radiation. The greatest effect observed personally has been in the Wilms group where remarkable regression has been noted in a number of instances and has made subsequent nephrectomy technically much easier. Two inoperable cases are now under observation both proved by exploratory biopsy who have carried remarkably well on x ray alone, though naturally cure is out of the question. One, a hypernephroma, for three years after operation without symptoms antedating operation four years making seven years in all the other a Wilms tumor for two years following operation.

Dr Mintz is to be congratulated for his excellent lantern slides and sane handling of his subject.

#### A FEW SLIGHT ERRORS

What has been published as a National Health Survey was nothing of the kind and what was publicized as a National Health Conference was not a conference at all but a sounding board before which a hand picked and in the main a pre-convinced group of invited guests listened to the report of a technical committee with the doubtful privilege of extemporaneous comments but no opportunity for collective consideration or adop-

tion of the slightest change in the ready made proposals which they were assembled to endorse.

What we have before us is not a National Health Program in any rational sense of the word in that it has not been conceived on the basis of the respective needs of all parts of the nation nor has it been in any true sense nationally accepted.

—Hazen Emerson M.D.

#### HEART DISEASE TAKES THE DOCTORS

Heart disease was again the leading cause of death, as it has been for many years of physicians whose obituaries were published in the *J.A.M.A.* In 1938 a summarizing editorial in the *Journal* points out.

"The number of obituaries of physicians published in the *Journal* during 1938 was 3,708 including 3,630 of the United States as compared with 3,277 in 1937 also 138 of Canadian physicians, the editorial states.

The average age at death of those classified as of the United States was 65.6 as compared

with 65.4 in 1937. The highest number of deaths, 590 occurred between the ages of 65 and 69.

Arteriosclerosis was the second most frequent cause of death with 442 victims. Cerebral hemorrhage ranked third with 384 deaths. 28 additional deaths were reported as due to paralysis. Fourth on the list was pneumonia with 350 deaths of which 111 were specified as due to bronchopneumonia. Cancer was reported as the cause of death in 334 cases while nephritis was reported in 204 deaths.



growth, some more rapidly growing than others, they may become invasive at an early period in their development, or they may remain benign for a long period of time and sometime assume a large size. This is consistent with what we already know about the natural history of these neoplasms and would account for those cases where the first symptoms of renal tumor antedated the clinical appearance or the diagnosis of a tumor by many years, cases where a diagnosis was made by pyelogram or palpation of a mass and the patient went years before an operation was performed and a definite pathologic diagnosis made, cases where the diagnosis was made by exploratory operation or biopsy, or both, and the patient lived years afterward, and finally, cases where tumor thrombi were found in the renal vein and the patients lived for years without metastasis.

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TABLE 1—EPITHELIOMA OF TONSIL  
S.I.M.D. Tumor Clinic  
Classification According to Age and Sex

Decade	Male	Female	Total	Percentage
80-89	5	0	5	3.0
70-79	28	2	30	18.5
60-69	47	2	49	30.2
50-59	47	7	54	33.3
40-49	17	2	19	11.7
30-39	3	1	4	2.4
20-29	1	0	1	0.6
Total	148 or 91.8%	14 or 8.6%	162	99.7

but also often later to distant organs or parts of the body. In fact, the appearance of cervical metastasis may be the first sign that points with suspicion to the tonsil. The marked radiosensitivity of these more anaplastic growths often serves as a means of differentiation from the more common epidermoid varieties. These tumors present a histopathologic picture generally spoken of as transitional or lymphoepithelioma, first described by Schemke and Regaud in 1921, then later by Ewing and others. The differentiation of these two latter varieties seems not too clearly drawn in the prevailing literature or in the minds of most tissue pathologists. Of the rarer adenocystic or adenocarcinomatous types only 1 such case was found in this series. In this particular patient the growth started quite characteristically on the anterior pillar and resembled before biopsy a simple cyst under fluid tension. This case remained healed over three years following radiation therapy and later developed an epidermoid type of recurrence in the same tonsil. Duffy noted a similar lesion in his series of 176 cases.

The histopathologic material in 57 of the later cases of this series was classified into various types in accordance with the degree of cellular differentiation after the method of Coutard and Stewart.<sup>13</sup> Such classification and the percentage of cases occurring in each group will be seen in Table 2. As previously noted by others, the epidermoid types predominated, representing 75 per cent. Of these, 54 per cent showed keratinization or pearl formation, while the other 21 per cent were of the mucous membrane type. The basal or transitional lesions constituted

only 15 per cent in this short series and in many instances were difficult to separate, as noted above, from the lymphoepitheliomas, which constituted only 5 per cent of this material. The undifferentiated type, composed of spindle or round cells, was noted in only 1 case. This group has been designated as nonepidermoid by

TABLE 2—EPITHELIOMA OF TONSIL  
S.I.M.D. Tumor Clinic  
Histopathologic Classification

Group	Description	Percentage
I	Adenocarcinomatous or glandular	1.7
IIa	Epidermoid type with pearl formation	54.3
IIb	Mucous membrane type	21.0
III	Transitional or basal cell type	15.8
IV	Lymphoepithelioma Schemke or Regaud type	5.2
V	Undifferentiated or nonepidermoid	1.7
		99.7

The above classification is based on a study of the histopathologic findings in 57 cases. The above scheme is a composite of a classification of tonsil epithelioma as given by Coutard and Stewart.

Coutard. The single adenocarcinomatous type was previously described. Photomicrographs of these various types are illustrated in Fig. 1 (see page 1415). It should be noted that such classification is purely arbitrary, technically difficult on account of a variable pleomorphism, and is probably of academic value only.

### Clinical Classification

Tonsillar epithelioma starts on either side, less commonly on the pillars, and from here spreads later by continuity to adjoining structures, the frequency being in the following order: soft palate, pyramidal sinus, tongue, anterior pillar, posterior pharyngeal wall, posterior pillar, and buccal mucosa. Approximately 77 per cent of our cases showed involvement of the regional cervical glands on admission, as could be determined by palpation, biopsy, or both. New and Childrey noted cervical metastasis in 67.8 per cent of 174 tonsillar epithelioma cases reported by them. The value of aspiration biopsy as advocated by Martin and Ellis<sup>6</sup> is hereby amply confirmed. Usually some clinical classification is necessary. This may be based on the presence of palpable metastatic nodes, on anatomic extent of

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## Discussion

Dr James J Duffy, *New York City*—Dr Mattick has made a valuable contribution to the treatment of carcinoma of the tonsil. It is a well-known fact that diseases that have a high mortality rate are seldom reported—that is, in adequate statistical form. The literature often contains a report of the unusual cured case. This has been too true of carcinoma of the tonsil. It is well that we now have an increasing number of cases reported in statistical form so that we can begin to evaluate the methods of treatment and thereby learn more by our failures than we do by our successful treatment of cases. Therefore, such a report as we have just had is of great value.

We realize that the report of three-year results is not the accepted time-interval for reporting cases of carcinoma, but it is a rational one for the disease now being discussed. The mode of treatment has changed rather rapidly, and it is thus possible to make more promptly a good estimate of the efficacy of the methods. Before this society, at the Utica meeting in 1934, I made a report on three-year survivals. I used three-year survival figures for two reasons—because Bervan had reported three-year results, and, secondly, because such a report would permit us to make a comparison of results of the newer method at an earlier date. The 178 proved cases I reported at that time were those treated up to and including 1929, when it was customary to give more moderate external irradiation, depending on the interstitial irradiation to eradicate the disease. About 1930 the external irradiation was greatly increased to control the disease, or at least to lessen the necessary amount of implanted radon, with all its concomitant difficulties—namely infection, necrosis, and frequent hemorrhage. I do not think the patient suffers any less by the initial heavy external irradiation followed by implantation of radon than by moderate external irradiation and full dosage of buried radon, therefore,

it is now our duty to offer them a decidedly better chance of survival. We are giving them a better chance of cure in general, as Dr Mattick has reported. But we are also having many failures, and I think it is to this group that we should give more attention in order that we may salvage a few extra cases and at the same time not cause undue suffering.

In the last few days I have looked over the abstracts of 260 proved cases of carcinoma of the tonsil treated at Memorial Hospital for the years 1921 to 1934, inclusive. I have divided them into three eras according to the type of treatment given, 1921 to 1924, inclusive—moderate external irradiation and glass seeds of radon, 1925 to 1929, inclusive—moderate external irradiation and gold tubes of radon, 1930 to 1934, inclusive—heavy protracted external irradiation and reduced amount of, or no gold implants. There were 49, 102, and 129 proved cases, respectively, in the three eras. I then analyzed the duration of life of those who succumbed, in the several intervals—namely, in first six months, six months to one year, one to two years, two to three years, and the three or more year survivals. It is striking to study the comparable mortality rate in the same periods of the several eras. It is especially interesting to note the high mortality within the six-month period, and also in the six-month to one-year period in the more advanced cases with cervical metastases. I fear that a considerable mortality is due to the treatment as well as to the advanced disease.

From my records, I notice in the 1930 to 1934 group with inoperable nodes, that 63 per cent died within the first year and only 10 per cent survived the three-year period, whereas 53 per cent of those without metastatic nodes on admission lived over three years. The advanced group was adequately representative, numbering 70 cases. This percentage indicates to me that this type of case should not be subjected to a method of treatment that is too severe, producing greater discomfort and possibly an earlier death. It is my belief that the result to be obtained should be estimated, and the treatment then outlined to attain this result with least possible discomfort to the patient. Advanced cases of the disease should not have what we might designate as a curative dose.

I believe that treatment of the several stages of tonsillar carcinoma has become somewhat too routine. Whenever we try to cure every case delegated to our care we get into many needless difficulties, cause many patients unnecessary discomfort and pain, and very likely shorten the duration of life.

A study of these advanced cases would add more to our knowledge of the treatment of carcinoma of the tonsil than a comparison of statistics of three- or five year cures.

The increasing number of reports by Bervan Coutard, Childrey and New Schall, and now by Dr Mattick is a healthful sign of the better controllability of cancer of the tonsil. I appreciate the privilege of discussing Dr Mattick's paper and congratulate him on his careful and able analysis of his cases.

Dr William Harris, *New York City*—Dr Mattick's paper is a timely and important contribution to the subject. It is especially important because of the large number of patients treated and because it has been possible to make a comparison of the response to treatment during three periods of study covering twenty years. The improved results have followed closely the advances that have been made in our knowledge of radiobiology and technique. The favorable results are comparable to those reported by Coutard, Schinz and Zupfinger and Duffy.

Dr Mattick's use of intrinsic radon before external irradiation was a matter of necessity rather than choice because of the economic status of the patients and because of the lack

of facilities for hospitalization. Although this order may seem illogical, his results compare favorably with those reported by others who depended mainly on external irradiation first and who used intrinsic radiation for the residual disease. It is certain however that hemorrhage, necrosis and other sequelae of radionecrosis can be minimized if external irradiation is used first.

Local recurrences in 63 per cent of the primarily healed cases indicate that we must improve our local therapy. The addition of intraoral irradiation and a more judicious use of radon or radium in the diseased areas may play an important role in the improvement of our results. There has been a tendency lately to use smaller portals of entry for the roentgen therapy. Care must be taken to include the entire diseased area and if this is not possible by using one moderately sized portal it is often better to use two small portals, one above the other.

Cancer of the tonsil is considered by the majority of workers as a nonsurgical problem. The improved results as demonstrated by Dr Mattick should stimulate us to devise means for controlling the types that are not being cured at present. Progress in this direction may be slow but should come as our knowledge of the nature of cancer and radiobiology improves.

### 'WARE SHORT CUTS

Short-cut diagnosis of tuberculosis, such as by a single x ray examination is condemned by Dr J Arthur Myers of Minneapolis in *The Journal of the American Medical Association*. Declaring that 'x rays at their best are entirely dependent on the eyesight of the viewer' Dr Myers urges complete careful examinations, utilizing other methods in conjunction with x rays.

### A USEFUL SERVICE

Among the first 500 persons x rayed at the chest x ray demonstration sponsored by the Medical Society of the County of Queens in the Hall of Man at the World's Fair approximately 12 per cent were found to require medical care. The x rays are read by physicians appointed by the society and the report and x ray plate are sent to the physician of the person examined.

### HOPE SPRINGS ETERNAL

The belief that the human scalp can be cultivated like a tract of arable land is a mere superstition and results in the useless expenditure of millions of dollars on hair tonics, baldness remedies, and expensive hair growing treatments, declares Lois Mattox Miller of New York, in *Hygieia, The Health Magazine*.

### THE LECTURE WAS ILLUSTRATED

The ninth annual convention of the Biological Photographic Association will be held September 14-16 at the Mellon Institute for Industrial Research, Pittsburgh, Pa. For information write the Secretary of the Biological Photographic Association, University Office, Magee Hospital, Pittsburgh, Pa.

# SYSTEMIC MANIFESTATIONS OF LYMPHOGRANULOMA VENEREUM

## With Illustrative Case Reports

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**L**YMPHOGRANULOMA venereum is now conceived as a disease *sui generis* caused by a specific virus which is transmitted almost invariably by sexual congress. It is initiated by an inconspicuous primary lesion followed by subacute or chronic suppuration of the regional lymphatics, usually with fistulation, and the development of a granulation tissue which often invades contiguous tissues. Such extension may result in local obstructive phenomena manifested clinically as inflammatory rectal stricture, genitoano-rectal syndrome, esthiomene, and the like. These local evidences of inflammatory tissue response to the virus infection are the most consistent and obvious manifestations of the disease and, as the presenting problem in the majority of cases, have properly received major emphasis in the extensive literature on this subject.<sup>1a-1g</sup>

Apart from the constitutional reactions attending the acute phase of this venereal affection, the remote, systemic effects of the disease have received little recognition<sup>2</sup>, and others.<sup>3a-3h</sup> Recent reports in the literature,<sup>3a-3h</sup> and a review of 135 Frei-positive cases from the records of the Presbyterian Hospital,\* make it clear, however, that such systemic manifestations are not rare. And since lymphogranuloma venereum is common enough in this country to constitute a major public health problem, these aspects of the disease are deserving of more general medical interest.

\* A complete statistical analysis of these cases will be published by Drs. H. and W. Curth who performed all the Frei tests. The author is indebted to them, to Dr. C. V. Burt and to many others for the opportunity to study these cases.

## Constitutional Reactions to Infection in the Acute Initial Phase<sup>1a-1g 3d-3h</sup>

There is considerable variation in the severity and duration of the constitutional reactions preceding and attending the invasion of regional lymph glands. Fever, occasionally high but usually low grade and irregular (sometimes so mild that the patient is unaware of it), is virtually always present. Malaise, lassitude, headache, night sweats, chills, vertigo, considerable weight loss, backache, nausea, and vomiting commonly accompany lymphatic invasion, subsiding after days or weeks. A significant proportion of patients complain of transitory "rheumatism" (i.e., myalgias and arthralgias) in the early phases of the disease. A variety of skin lesions, chiefly of the erythema group, may occur. Conjunctivitis, episcleritis, signs of meningeal irritation, splenomegaly, and stomatitis have been described. These constitutional reactions rather than the local inflammatory symptoms may lead the patient to seek medical advice.

A moderate leukocytosis is almost invariably present, said to be chiefly polymorphonuclear in the early stages, but usually characterized by relative lymphocytosis and mononucleosis. A moderate secondary anemia is common even in the early stages. The erythrocyte sedimentation rate is consistently and considerably increased and is thought to afford a useful diagnostic criterion.<sup>4,5</sup>

Ordinarily, these constitutional reactions offer no serious diagnostic problem since buboes or localizing genito-

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urinary or rectal signs reveal the nature of the underlying infection. But patients who present marked and prolonged hyperpyrexia without these localizing signs may simulate typhoid or undulant fever, sepsis, appendicitis, etc., which doubtless contribute to the total of patients with "fever of unknown origin." The cases of Kornblith<sup>6</sup> and our own appended case illustrate the point.

*Case 1*—L. B. a married negress aged 22 was admitted to the Medical Service of the Presbyterian Hospital in May 1932 because of shaking chills and fever of five days' duration with severe headache, diffuse muscle pains and anorexia. She had had typhoid fever nine years before, no malaria, intermittent leukorrhea for two years associated with burning on micturition for a three-day period one year before, and transient redness, swelling and tenderness of the left knee six months before. No other symptoms relating to past or present illness could be elicited.

On admission, the patient was acutely ill, temperature 103 F. Physical examination was negative except for tenderness on deep palpation of the left periumbilical region and left flank. No masses could be felt. Pelvic examination revealed evidences of chronic inflammatory disease of the adnexa on the left, too inactive in the opinion of the gynecologic consultant to account for the present acute illness. The leukocyte count on admission was 7,100 with 69 per cent polymorphonuclears, 23 per cent small lymphocytes, and 8 per cent monocytes. The hemoglobin and erythrocyte content were within normal limits. No malarial parasites were found. The blood Wassermann test was negative. Examinations of the urine showed no pus, blood, or albumin. X-rays of the genitourinary tract revealed no abnormalities. Agglutination tests were negative. The fever subsided on the third day of hospitalization with apparently complete recovery. She was discharged shortly thereafter, diagnosis—fever of unknown etiology.

The patient reappeared in June, 1937, because of increasing costiveness for four years, with recent blood in the stools. An inflammatory stricture of the rectum was found. The Frei test was positive. It now seems likely that involvement of deep pelvic glands by the lymphogranuloma virus caused the "fever of unknown etiology" in 1932, since the episode, in retrospect, was so typical.

### Constitutional Reactions to Infection in the Late and Chronic Stages of the Disease<sup>10-12 20-24 7 8 9</sup>

The large majority of patients infected with lymphogranuloma venereum virus terminate their acute or subacute course to remain asymptomatic thereafter. The only sequelae evident are scars of healed inguinal buboes (in males) and persistent specific cutaneous hypersensitivity. The high percentage of positive Frei reactions found in the general hospital population of St. Louis by Gray, *et al.*,<sup>10</sup>—40 per cent of Negro, 34 per cent of white patients devoid of signs or symptoms of lymphogranuloma venereum—emphasizes the frequency of apparently complete cures. Gray and his associates estimate, in fact, that fully 50 per cent of all Frei positive patients are virtually asymptomatic throughout the course of their infection, since no symptomatic history of lymphogranuloma venereum could be elicited. Further work in this direction is desirable.

In the very considerable number of patients whose course is protracted or relapsing or who develop complications, the resulting clinical picture is extremely varied. It is only comparatively recently, through the work of Frei, Jersild, Levaditi, Findlay, and others,<sup>11</sup> that several syndromes formerly regarded as distinct clinical entities have been recognized as having this common virus etiology.

Not infrequently the chronic course of the disease is dominated by prolonged fever and general constitutional reactions accompanying protracted suppuration and fistulation of regional lymph nodes, sometimes for many months. In some instances, an acute flare-up of this kind occurs after long periods of quiescence, apparently due to spread of the disease, occasionally also following therapy, particularly after dilatation of rectal or urethral strictures. In such chronic cases, as noted by others,<sup>11 12</sup> the fever curve may be of strikingly undulating character. Peri- and pararectal fistulas (which are not infrequently due to the virus), condylomatous vegetations of

granulation tissue in the genital and perineal area with chronic ulceration, elephantiasis of the genitalia (esthiomene), specific lymphogranuloma venereum urethritis with stricture, etc., may likewise be accompanied by distinct constitutional symptoms. Here the clinical course is more likely to be that of an insidious, debilitating, chronic infection: lassitude, loss of strength, marked loss of weight, pronounced secondary anemia, with little or no fever. The distressing local symptoms in all these conditions, however, are almost invariably of paramount importance.

In many ways the most significant complications of lymphogranuloma venereum, so far as general medical problems are concerned, are those affecting the intestinal tract. Inflammatory stricture of the rectum, formerly thought to be due to syphilis or gonorrhea, is now known to be caused chiefly by the lymphogranuloma venereum virus. The characteristic local features of this condition, of which Mathewson has recently given an excellent description,<sup>9</sup> need not be detailed here. The general debilitation accompanying rectal stricture should be emphasized, however. Marked weight loss (as much as 30 to 50 pounds in some cases), pronounced secondary anemia, weakness, and mental depression are common. That many such patients with advanced stenosing lesions of the rectum complain of only moderate or occasional constipation, adequately regulated by diet and laxatives, has been pointed out many times. The disarming mildness of this complaint may dissuade the examining physician from rectal examination and thus from the correct diagnosis.

Various forms of ulcerating and proliferating proctitis without stricture are common, particularly in males exposed to direct rectal implantation of the virus. Extensive involvement of the sigmoid, descending and, occasionally, transverse colon may occur (Fig 1). The clinical picture of pus and blood in the stools, diarrhea, tenesmus, and abdominal pain often leads to confusion with nonspecific ulcerative colitis, neoplasm, amebiasis,

intestinal tuberculosis, and similar conditions. Paulson has recently proposed an intradermal reaction, using bowel antigen obtained from such patients.<sup>13</sup> His results indicate that colitis due to lymphogranuloma venereum virus may be more widespread than is now appreciated.

The presenting problem in patients with granulomas of the intestinal tract ultimately becomes one of control of intestinal stasis. Varying degrees of constipation or recurring attacks of frank ileus with abdominal pain, distention, and fever develop, so that colostomy is necessary (Case 2).

Some patients with acute intestinal obstruction perforate and die following the development of peritonitis. Necropsy reports in the literature<sup>8</sup>, and others indicate that death following peritonitis in cases of lymphogranuloma venereum is not rare. The records of the Presbyterian Hospital include 3 such cases.

*Case 2*—G M., a cachectic colored widow aged 50, was first seen at the Presbyterian Hospital as a medical outpatient in 1931. She complained of increasing constipation of many years' duration, loss of 10 pounds in the past year, weakness, anorexia (but no vomiting), and recent urinary dribbling. Venereal infection was denied. Apart from emaciation, the only significant finding on physical examination was a ventral hernia, which was held responsible for clearly visible peristaltic movements in the lower abdomen, and for constipation. No pelvic or rectal examination was done, however. A hypochromic anemia was present (RBC 3,800,000, hemoglobin 60 per cent), the leukocyte count was 9,000 with normal differential. The blood Wassermann test was negative. X-rays of the gastrointestinal tract showed narrowing of the sigmoid colon with striking dilatation and atony of the proximal colon (cf. Case V S, Fig 1). Rectal examination then revealed an advanced inflammatory stricture of the rectum, with numerous circumanal excrescences. The Frei test, done by Dr W. Curth in 1932, was positive.

Her condition remained essentially unchanged until January, 1935, when she developed severe pain in the left hip, without redness or swelling, and in the left groin (where several small nodes were palpable). She could walk but used a cane. In May, 1935, the pain became worse, so the patient, still ambulatory, returned to the

clinic. X rays showed an impacted intracapsular fracture of the neck of the left femur apparently a spontaneous pathologic fracture. There was moderate generalized skeletal decalcification, but nothing to suggest neoplastic metastases. She was admitted to the fracture service where after a fruitless search for neoplasm and after protracted conservative measures resulted only in persistent nonunion open reduction of the fracture was performed. The femoral head was found to be quite soft there were old adhesions within the joint and the intact capsule contained a moderate amount of fluid but not purulent exudate. Biopsy showed no neoplastic cells.

Though the patient was discharged in August 1935 on crutches the head of the femur was eventually completely resorbed and she became bedfast. The etiology of this joint affection was never satisfactorily explained. It is not known whether or not lymphogranuloma venereum played a contributory role, either by direct infection or through decalcification resulting from dietary restrictions self imposed because of the gastrointestinal sequelae of her rectal stricture.

In the meantime her urinary symptoms became more marked and it was found that she had a urethral stricture. She continued to lose weight and strength. Symptoms of chronic ileus became more distressing in 1936. In November of that year she developed acute intestinal obstruction and was admitted to the surgical service for colostomy. The entire large bowel particularly descending colon and sigmoid was found to be enlarged. The retroperitoneal tissues were thickened and scarred and numerous enlarged lymph nodes could be palpated. A loop of terminal ileum was acutely angulated adherent to chronic inflammatory tissue deep in the pelvis. Biopsy of the sigmoid colon showed granulation tissue of the type found in lymphogranuloma venereum.

The patient was discharged to a chronic hospital in January 1937. Her condition when last ascertained in March of that year was unimproved.

#### Possible Mechanisms Operating in the Causation of the Systemic Manifestations of Lymphogranuloma Venereum<sup>1a, 1b, 1c, 2c, 2d</sup>

It is evident from what has been said that though lymphogranuloma venereum is ordinarily acquired by venereal contact, the consequences of the infection, as with syphilis often affect the whole organism. This brings us to the still mooted question



FIG. 1 X-ray of the colon following barium retention enema in a case (V S) of lymphogranuloma venereum with presenting symptoms of chronic ileus. The lumen of the rectum sigmoid descending and part of the transverse colon is markedly constricted due to granulomatous involvement of the wall. The proximal colon is greatly distended. An incidental large, calcified fibroid of the uterus is present in the pelvis.

of general dissemination of the virus in man following implantation via genital, rectal, or oral routes. Experimental infection of various laboratory animals through these portals of entry has not led to diffuse spread of the virus. But in monkeys inoculated with virus intracerebrally or intraperitoneally, liver, spleen, bone-marrow, and lymph glands contain the virus, as shown by transmission of the disease to other animals by extracts prepared from those organs.<sup>1a</sup> It has not yet been possible to obtain such incontrovertible evidence of generalized dissemination in man, though presumptive and contributory evidence is available to indicate that the distribution of the virus in man may be widespread.

1 Acute 'Toxic' Constitutional Reactions to Infection—As already indi-



TABLE 1 — DISTRIBUTION OF TOTAL SERUM PROTEINS IN 72 CASES OF LYMPHOGRANULOMA VENEREUM (FREI REACTION POSITIVE IN EVERY INSTANCE)

		Total Serum Proteins (Gm per 100 Cc Serum)				
		6 0-7	8 8-9	9 9-10	10 10 or more	
		(normal range)				
1	Patients with rectal stricture (42 cases)	7	18	14	3	
2	Patients without rectal stricture (30 cases)	18	11	0	1	

cated, infection with lymphogranuloma venereum virus often manifests itself, like so many other infections, by an acute "toxic" onset. Von Haam and D'Aunoy, whose clinical and experimental experience with the disease is exceptional, incline to the view that general dissemination of the virus may occur frequently in the incipient stages of the disease, the virus being soon destroyed or neutralized, in most instances, so that only local lesions develop.<sup>3d</sup> The practical difficulties in the way of substantiating this hypothesis are obvious. So far as demonstrating the virus in the blood of patients is concerned, numerous attempts have been negative. It seems justifiable to conclude from the evidence at hand that it is possible but not yet proved that the acute "toxic" symptoms of lymphogranuloma venereum infection in man are due to early dissemination of the virus.

2 *Systemic Manifestations Due to the Allergic State* — Since specific cutaneous sensitization (upon which the Frei intracutaneous reaction depends) is known to be an almost constant phenomenon in lymphogranuloma venereum,\* some clinical manifestations of the disease might well be expressions of allergy of the skin or, possibly, of other organs. Of the variety of skin lesions described in patients with this disease, erythema nodosum occurs with sufficient frequency to preclude a wholly fortuitous association. It is now generally believed that the major causative factor in erythema nodosum is local tissue hypersensitivity,

\* Frei estimates<sup>1f</sup> that about 5 per cent of cases with buboes and about 10 per cent of cases with ulcerative elephantiasis of the genitalia are anergic and give negative skin tests.

the sensitizing agent (tubercle bacillus, hemolytic streptococcus, bromides, lymphogranuloma virus, Coccidioides, etc) being of secondary importance. In fact, erythema nodosum may be regarded as a nonspecific inflammatory reaction of highly sensitized skin,<sup>15</sup> since "parallergic" reactions appear to be so frequent. These recent trends tend to bear out Hellerström's view<sup>1d</sup> that erythema nodosum in lymphogranuloma venereum is fundamentally a local tissue hypersensitization phenomenon. Frei has intimated<sup>1b</sup> that the validity of experimental evidence offered to the contrary<sup>16</sup> is open to question. The repeated observation of erythema nodosum developing in the course of severe reactions to the Frei test,<sup>1d, 3h, 16, and others</sup> is in accord with Hellerström's view. Myalgias and arthralgias may also occur in conjunction with such severe reactions, recalling the transitory "rheumatic" episodes, which are observed spontaneously.

Of 135 Frei-positive cases at the Presbyterian Hospital, 33 gave a definite history of joint pains at some time in the course of the disease. Of those that could be adequately examined for gonococci, to which the joint pains could be ascribed, 10 were found to have negative smears and complement fixation tests. While the causal relation of lymphogranuloma venereum to such joint affections has not been proved, their common association<sup>1a, 3a, 3c, 17 and others</sup> would appear to be more than coincidence. Similar conclusions were reached by Dr M H Dawson and his associates,<sup>18</sup> who have recently studied a number of these Frei-positive patients with joint manifestations previously accepted as atypical cases of gonococcal or rheumatoid arthritis or as rheumatic fever.

It is interesting to note that a number of patients in both early and advanced stages of lymphogranuloma venereum developed acute migratory polyarthritis with redness, swelling, and extreme tenderness of the joints, fever, and malaise. Not infrequently, the ankles, wrists, elbows, and hips were successively affected, usually with bilateral though not

TABLE 2.—REPRESENTATIVE SERIAL ANALYSES OF SERUM PROTEINS IN PATIENTS WITH LYMPHOGRANULOMA VENEREUM

Case	Date	Total Protein Gm %	Albumin Gm %	Globulin Gm %	Euglobulin Gm %
F A	12-16-35	11.2	2.0	8.3	
	12-31-35	10.1	3.3	6.8	
	1-27-36	10.7	2.0	7.8	4.0
	5-15-36	10.8	3.1	7.7	3.8
	11-5-36	11.1	1.3	7.8	3.2
F H	2-10-36	9.2	3.5	5.7	
	3-1-37	8.8	3.2	5.6	1.1
	3-3-37	8.4	3.2	5.2	1.3
C M (Case )	3-10-35	8.6			
	9-15-35	8.6	3.0	5.0	1.7
	1-29-37	8.5	1.3	5.0	1.8
M I	1-30-36	8.4	3.8	4.2	
	5-28-36	8.1	3.9	4.1	1.8
	9-24-36	8.6	3.9	4.7	1.7
	12-2-37	8.6	4.1	4.5	1.6
	1-21-38	9.1	4.0	5.1	
D P	3-24-36	8.5	3.7	4.8	0.9
	11-24-36	9.0	3.8	5.2	1.4
	8-17-37	8.9	3.7	5.2	

necessarily simultaneous involvement. The attacks subsided after days or weeks, for the most part, without joint effusion or impairment of function. A number had recurrent attacks of acute polyarthritides, some complained only of persistent or intermittent joint pain, and others developed chronic involvement of one or more joints with repeated clear, sterile effusions.

These episodes were usually undiagnosed or called acute rheumatic fever. It now seems probable that the underlying disease—lymphogranuloma venereum—was the cause. How appropriately the "allergic hypothesis" so widely applied to the arthritis of rheumatic fever can be invoked to predicate local hypersensitivity of the periarticular tissues in lymphogranuloma venereum is a matter of speculation.

Among other systemic manifestations likewise attributable to the allergic state might be considered the severe fever reactions of lymphogranuloma venereum patients but not (ordinarily) of normal subjects to intravenous injection of Frei antigen.<sup>34</sup> In this general category, too, falls the matter of acquired immunity in the natural course of the disease: the evidence for which is indirect, being based upon the extreme rarity of reinfection<sup>16</sup> and the refractoriness of Frei positive patients to inoculation with potent lymphogranuloma venereum virus.<sup>19</sup>

### 3 Systemic Manifestations Due to Hyperglobulinemia<sup>20 21 22 23 24</sup> and others—

A recently discovered systemic effect of lymphogranuloma venereum infection and one that operates to cause other systemic effects, is hyperproteinemia due to large increases in serum globulins. Of 72 Frei positive patients in all stages investigated at the Presbyterian Hospital, 47, or roughly two-thirds, were found to have total serum proteins in excess of 8.0 per cent, the upper limit of normal, and 57, or roughly four-fifths, had serum globulins in excess of 3.5 per cent. Marked hyperproteinemia occurs particularly in cases with chronic complications, notably in patients with rectal stricture (Table 1) of 42 such cases investigated, 35, or 83 per cent, showed hyperproteinemia, with values up to 11.4 per cent. Repeated determinations have been made over periods of almost two years in some instances and indicate that the elevated serum protein values tend to persist for indefinite periods at an approximately constant level (Table 2).

Hyperproteinemia may occur in a variety of diseases, notably in multiple myeloma, kala azar, hepatic cirrhosis, leprosy, sarcoid, tuberculous lymphadenitis, malaria, bacterial endocarditis, acute disseminated lupus erythematosus, etc. But only in multiple myeloma and kala azar, so far as known, does one find so high a proportion of total serum protein values over 9.0 (40 per cent of our

cases with rectal stricture [cf Jersild<sup>22</sup>]) In this sense, the determination of serum proteins may be said to have limited diagnostic value A very simple test for hyperglobulinemia, the formol-gel reaction,<sup>25 26,27</sup> can be used for the detection of that condition in lymphogranuloma venereum and in other diseases

The significance of this striking hyperglobulinemia is not known We believe it reflects the immune response of the organism to infection, and the vulnerability to the virus of the reticuloendothelial system,<sup>14</sup> which appears to elaborate serum globulins, may account for the unusual globulin response to this infection

Hyperglobulinemia is associated with a number of peculiarities of the blood, recently reviewed *in extenso* by Jeghers and Selesnick<sup>28</sup> The causal relation of increased serum globulins to increased erythrocyte sedimentation rate, almost always present in lymphogranuloma venereum, is now well established In chronic stages of the disease, the increase is often very marked, despite the absence of fever or other obvious indications of active infection A very high sedimentation rate in afebrile patients should lead to the suspicion of diseases commonly presenting hyperglobulinemia, including lymphogranuloma venereum

Ravaut and Rabeau<sup>29</sup> called attention to the occurrence of transitory, falsely positive Wassermann reactions in the early phases of lymphogranuloma venereum Similar observations, though less consistently, have been made by others<sup>30</sup> It is interesting to note the frequency of nonspecific Wassermann reactions in a variety of diseases in which alterations in serum globulins occur, notably in leprosy, kala-azar, and in malaria<sup>27,28</sup> Since reagin has the properties of a globulin, the assumption of a causal relation between disturbances in serum globulins and nonspecific blood Wassermann reactions seems justified The same applies to the anticomplementary properties acquired by the serum of many patients with lymphogranuloma vene-

reum, particularly in chronic stages of the disease Our records show that Wassermann reactions performed on 129 Freipositive patients were reported anticomplementary at least once in 24 cases, of whom a number were repeatedly or consistently anticomplementary This is an incidence of 18.6 per cent, as compared with that of approximately 1 per cent in our general hospital population (including lymphogranuloma venereum cases) \* Though the incidence of anticomplementary reactions in cases with hyperglobulinemia greatly exceeds that of cases without hyperglobulinemia, not all sera containing excessive amounts of globulins due to lymphogranuloma venereum possess marked anticomplementary properties Obviously, factors other than simple quantitative increases in globulin are involved Nevertheless, since anticomplementary Wassermann reactions are particularly common in other diseases associated with hyperglobulinemia,<sup>31 32 28</sup> some causal relation seems probable We have found it useful in differential diagnosis to consider the possibility of diseases presenting hyperglobulinemia (including lymphogranuloma venereum) in patients with persistently anticomplementary Wassermann reactions

The Takata-Ara reaction, the formol-gel test, the Henry reaction, and a number of similar tests dependent upon altered serum globulins, are positive in lymphogranuloma venereum<sup>20 25 28</sup> Apparent disturbances in acid-base equivalence, likewise due to the presence of "abnormal" serum globulins, have been pointed out<sup>21 33</sup> Lymphogranuloma venereum patients have proved to be a valuable source of sera for investigation of certain serum globulin fractions

4 *Systemic Manifestations Directly Attributable to Extension or Dissemination of the Virus* 1a, 1c, 3c, 3d 3f, 6, 8, 14—The presence of lymphogranuloma venereum virus in the lymph glands of draining

\* Jersild<sup>22</sup> found but two anticomplementary sera, one only faintly so, in 55 lymphogranuloma venereum sera This incidence (less than 4 per cent) is lower than ours but considerably higher than Jersild finds<sup>21</sup> in the population at large approximately 1 in 10 000

lymphatics and in granulation tissue involving vulva, rectum, and colon has been definitely established by animal transmission experiments.<sup>12, 13, 14</sup> It has been further demonstrated by pathologic studies that extension along lymphatic channels with involvement particularly of iliac, paraortic, and mediastinal glands occurs.<sup>2, 3, 24, 25</sup> In personal cases. Invasion of submaxillary, cervical, and axillary nodes following extragenital virus infection has been described repeatedly.<sup>24</sup> Eberhard<sup>25</sup> has recently reported a case of lymphogranuloma venereum with generalized lymphadenopathy, and reviewed published accounts of similar cases. These studies indicate that lymphogranuloma venereum should be included among the causes of generalized lymphadenopathy. Difficulties in the diagnosis of such cases relate chiefly to differentiation from tuberculosis and syphilis. But metastatic carcinoma, lymphosarcoma, Hodgkin's disease, and infectious mononucleosis may also be simulated, particularly when splenomegaly or hepatosplenomegaly is present.<sup>24, 25</sup> Occasionally, difficulties arise in distinguishing large, fluctuant, nonfistulating inguinal buboes from incarcerated hernia, particularly when, as in Eberhard's case,<sup>25</sup> there is associated generalized abdominal pain, distention, and vomiting. Pain on straining is common in patients with inguinal and pelvic lymphadenopathy, the so-called "fatigue glands" of the older literature. Moreover, herniation through the weakened abdominal wall at the site of old multifistulating buboes, which have healed, may occur.

Case 3—J. C. an unmarried Irishman aged 27 was admitted to the Surgical Service of the Presbyterian Hospital in April 1936 because of painful swelling of the left groin for five weeks. The swelling appeared quite suddenly was definitely associated by the patient with strain on lifting a heavy object and was slowly increasing in size and tenderness. He had lost 30 pounds in the preceding six months attributed to dieting but was otherwise free of complaints. Bowel movements had been regular no vomiting. Venereal infections and their sequelae were denied.

The findings on physical examination were limited to a tense, somewhat fluctuant, slightly tender irreducible bulge in the left groin, about 5 cm in diameter. This was thought to be an incarcerated femoral hernia. The overlying skin showed a slightly reddish or bluish discoloration without fistulation. No abnormalities of the genitalia or rectum were noted. His temperature fluctuated between 99 and 100 F. A leukocyte count on one occasion was 10,300 with 81 per cent polymorphonuclears, on another 15,300 with 70 per cent polymorphonuclears. The urine was normal blood Wassermann tests negative.

Upon incising the swelling creamy greenish pus escaped from a multilocular abscess in a necrotic lymph node. Adjacent nodes were likewise affected. Sections of these nodes were consistent with the revised clinical diagnosis of lymphogranuloma venereum. Postoperative Frei tests proved to be consistently positive.

Chronically involved glands cause lymphatic stasis not only of the genitalia but also a brawny edema of one or both lower extremities. Acute swelling with suppuration of the iliac glands, which is not uncommon, gives rise to tender, sometimes easily palpable masses in the lower abdominal quadrants with confusing symptoms ("iliac gland syndrome"), occasionally suggesting paranephric abscess, acute appendicitis, etc.<sup>24</sup> Extension from suppurating iliac glands into the abdominal wall, the psoas muscle, the hip joint, or into the peritoneal cavity with death due to peritonitis has been described. Invasion of the adnexa occurs frequently enough to justify the suspicion that some cases of chronic inflammatory pelvic disease are due to lymphogranuloma venereum infection.<sup>12, 24</sup>

Possible cerebral localization of the virus in man following infection via the genital route has been suggested<sup>26</sup> because of the frequency of severe headache and vertigo in acute stages of lymphogranuloma venereum, the occasional occurrence of stiff neck, and (unconfirmed) reports of increased intraspinal pressure. Von Haam and D'Aunoy<sup>27</sup> demonstrated the virus in the spinal fluid of 2 of 8 such cases by transmitting the disease to animals through inoculation with spinal fluid. Frei antigen has been prepared

repeatedly from the spinal fluid of cases of acute lymphogranuloma venereum, notably by Rajam<sup>38</sup> from a patient who died with signs and symptoms suggesting meningoencephalitis, but who was not autopsied. There are several other unverified case reports of lymphogranuloma venereum with manifestations interpreted as due to central nervous system invasion by the virus.

Evidence is available, moreover, that in some cases lymphogranuloma venereum virus may be present in the conjunctivas, in joints, and in certain internal organs. Necropsy of a case reported by Reichle and Connor<sup>39</sup> revealed a sinus tract draining pus from necrotic lymph glands into a hip joint, with destruction of joint surfaces. Extension of the virus in this manner may account, in part, for the significant incidence of hip joint involvement in this disease. The case of Reichle and Connor further showed curious renal lesions small, circumscribed areas of necrosis scattered throughout the cortex. These abscesses consisted of focal aggregations of lymphocytes and plasma cells. The same type of renal lesion was observed at necropsy in a case of lymphogranuloma venereum at the Presbyterian Hospital. In this case, to be reported in full by Drs H and W Curth, similar but less distinctive focal collections of round cells were also present in the liver and spleen.

The frequent occurrence of traces of protein in the urine in lymphogranuloma venereum, as yet unexplained, may signify a higher incidence of renal involvement than is now appreciated. Occasionally, the possible role played by lymphogranuloma venereum in producing or contributing to the clinical picture of nephritis presents a nice diagnostic problem, as in the following obscure case.

*Case 4*—C K, a married negress, aged 34, was admitted to the Medical Service of the Presbyterian Hospital in January, 1936, with edema of the face and legs as the presenting symptom. Accepted for life insurance in 1931, her first complaint, in 1933, was slowing and feebleness of the urinary stream, necessitating straining, and nocturia (3-4x) but no burning or

obvious clouding of the urine. Five months before admission, profuse metrorrhagia had set in to continue for almost three months, followed by gradually diminishing seropurulent vaginal discharge. The last normal period was six months ago. For three weeks she had had a sore throat with fever, chills, hoarseness, profuse nasal discharge, and severe nosebleeds. Shortly after onset of the respiratory infection, puffiness of the eyelids, then edema of the legs, and, more recently, swelling of the abdomen had appeared. No history of previous rheumatic or scarlet fever, of acute nephritis or hypertension could be elicited. There was no exertional dyspnea or palpitation. Venereal disease was denied.

She appeared chronically ill on admission, with temperature of 100 to 101 F. There was generalized anasarca. The pharynx was diffusely red, postnasal drip was present. The pupils and eye grounds were normal. There was passive congestion at both bases. The heart was moderately enlarged, particularly to the left, no definite murmurs were heard. The systolic blood pressure was 160, diastolic 110. The liver was enlarged, apparently due to congestive failure, the spleen was not palpable, no definite fluid wave could be made out. There was some vaginal discharge due to chronic inflammatory pelvic disease. Rectal examination was negative, no lymphadenopathy was noted.

A marked hypochromic anemia (erythrocytes 2,950,000, hemoglobin 50 per cent) was present, the leukocyte count was 8,550 with normal differential. The venous pressure was elevated (196), circulation time increased (23 seconds), and the electrocardiogram showed low voltage and upright T<sub>4</sub>. The urine showed traces of albumin, many pus cells, variable numbers of erythrocytes, occasional hyaline and granular casts, and no Bence Jones protein. The specific gravity in concentration tests did not exceed 1.015. Intramuscular P S P test showed the total excretion in two hours reduced to 20 per cent. The blood nonprotein nitrogen was 40 mg per cent.

A chronic pansinusitis was found, irrigation yielding much purulent material. Hemolytic streptococcus was cultured repeatedly from the throat. The antistreptolysin titer was 250 units, the streptococcus agglutination test was doubtful. Blood cultures were negative.

Three blood Wassermann tests were reported anticomplementary, the Kahn test was negative. The sedimentation rate (Westergren) consistently exceeded 120 mm in one hour and was 87 mm in a defibrinated specimen. The formol-gel reaction was positive. The total

serum protein content was 8.3 per cent albumin 26 per cent globulin 5.7 per cent (later 10.3 per cent with 3.1 per cent albumin). The Frei test was positive on three occasions.

The difficulties in urination were found to be due to marked urethral stricture with 300 cc cloudy residual urine. Dilatation of the urethra was followed by general malaise and the appearance of large exquisitely tender inguinal lymph nodes. This suggested a flare up of an old lymphogranuloma venereum infection of the urethra, particularly since several cervical and urethral smears for gonococci were negative. Cystoscopy showed cystitis and a possible diverticulum. Intravenous pyelography revealed no abnormalities in size or shape of the kidneys.

The patient improved under treatment (except for persistent hypertension) and could resume normal activities after nine weeks of hospitalization. No definite decision could be reached as to what role, if any lymphogranuloma venereum played in her renal disease.

More necropsy reports and animal transmission experiments with human organ extracts are needed in order to determine how many of the systemic manifestations of lymphogranuloma venereum can be attributed to generalized dissemination of the virus. That such systemic manifestations occur, however, and with sufficient frequency to be of general medical interest, would appear to be well established.

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# Discussion

Dr M. H. Dawson, *New York City*—The introduction of the Frei test has made us all conscious of the wide prevalence of lymphogranuloma venereum. This disease now looms as a great public health problem. A recent survey in St. Louis revealed that as many as 40 per cent of the colored population in that city were infected and probably the proportion is very considerable in New York City. Nor should it be assumed that the disease is confined to the colored race or to those who have lived in tropical climates. Numerous examples are to be found in white people who have never lived outside of New York City.

Until recently it was generally assumed that lymphogranuloma venereum was more or less a local disease producing the well known genitoretal syndrome. Now however as Dr Gutman has so clearly shown we are learning to recognize that the disease is a generalized systemic one.

Our interest in the problem of lymphogranuloma venereum has been entirely an indirect one. In the course of our observations and studies in the arthritic clinic we became aware of a certain

group of cases that could not be accurately classified. Many of these cases suggested a subacute form of neisserian arthritis, but the confirmatory diagnostic tests were rarely positive and the arthritis pursued a course that was very atypical for that disease. The possibility that these cases might be associated with lymphogranuloma venereum suggested itself and they were studied from that point of view. During the past two years we have encountered a subacute form of arthritis in 16 patients who gave a positive Frei test. It has been difficult to exclude other etiologic factors but we believe that at least the majority of these cases were due to infection with the virus of lymphogranuloma venereum. The joints most frequently affected were the knees, the ankles, and the wrists, although other articulations were involved in some instances. The arthritis pursued a variable course but in no instance was there any evidence of joint destruction, and in all cases there was ultimately complete restoration of function. Synovial fluid was aspirated from several and invariably proved sterile on culture. Efforts were made to prove the etiology of the arthritis in two ways: (1) by injection of synovial fluid intracerebrally into white mice, (2) by preparing Frei antigen from the synovial fluid and testing it out on known Frei-positive cases. The latter experiment was kindly carried out for us by the courtesy of Dr Curth. Both of these procedures failed to demonstrate the presence of the etiologic agent. In spite of these failures, we are inclined to believe that the arthritis of lymphogranuloma venereum is a true clinical entity and that this diagnosis should always be kept in mind when one is confronted with an indolent serous arthritis, particularly in a colored person.

Certain other general manifestations of this disease are also worthy of mention. The majority of the patients we have observed have shown evidence of a general and prolonged infection. They are underweight, undernourished, anemic, and chronically ill. With a keener appreciation of the systemic manifestations of this disease I feel sure that the diagnosis will be made with increasing frequency.

Dr William Curth, *New York City*—When Dr Gutman asked me to discuss his paper on Systemic Manifestations of Lymphogranuloma Venereum, I accepted with great pleasure because I knew how much he had been interested in the subject.

As Dr Gutman has pointed out, not all cases of inverted albumin-globulin ratio give a positive Frei test because the patients have not,

or have not had, lymphogranuloma venereum. There exists also the possibility of an anergic state of the individual resulting in a negative Frei test.

As far as the acute phase of the disease is concerned, the dermatovenereologist is the one who will be consulted frequently by a patient with an inguinal bubo. Before Dr Frei, whom we are fortunate to have with us in New York now, discovered his test in 1925, these buboes were usually thought to be due to a slow chancroid infection. It took quite a few years after his discovery before even the dermatologists began to use his test extensively, and the older generation of the practitioners in many instances still confuses lymphogranuloma venereum with other diseases, such as the tropical skin disease, granuloma venereum, where Donovan bodies are found, or with Paltauf-Sternberg's lymphogranulomatosis.

As you have already heard from Dr Gutman, lymphogranuloma venereum is by no means a rare disease. At the Vanderbilt Clinic and Presbyterian Hospital in New York City, Dr Helen Curth and I have seen more than 200 cases since 1931. Out of this number, 77 were acute cases showing the early stages of lymphogranuloma venereum with, or for the most part without, the evanescent primary lesion or in most cases with inguinal adenitis alone. In rare cases femoral buboes occur. Occasionally, the primary lesion is located in the rectum. In such an instance we found atypical pleiad-like inguinal adenitis simulating syphilis, which, however, could be ruled out completely. Thirty-one cases were latent, showing a positive Frei test sometimes with a history of inguinal buboes. Absence of a bubo scar or lack of history of inguinal adenitis does not at all exclude the development in later years of a rectal stricture with a positive Frei test.

The largest number of more than 100 were tertiary cases showing rectal strictures, chronic ulcerations of the genitals, elephantastic swelling, proctitis, arthritis, and the systemic manifestations, such as high sedimentation rate, hyperproteinemia, anticomplementary Wassermann tests, and disturbed albumin-globulin ratio.

Rectal strictures are more commonly found in women. We encountered rectal strictures in 16 men, compared with 68 in women. The presence of an indurated mass in the rectum in a patient showing a positive Frei test is by no means proof of the lymphogranuloma venereum nature of this mass. Biopsy on such a case, which came to the Vanderbilt Clinic recently with four positive Frei tests, one of which had

been obtained at another hospital before, revealed squamous cell epithelioma of the rectum. Rectal strictures may be due occasionally to gonorrhea. We saw a young man lately who had suffered from gonorrhea of the rectum eight years ago and now presented a rectal stricture with a negative Frei test.

So far we have not been able to obtain a positive Frei test with synovial fluid from a patient with typical lymphogranuloma venereum arthritis.

I wish to point out that lymphogranuloma venereum is a disease that is not at all restricted to the colored race. Of our 77 acute cases 28 were white and 49 colored.

Twice we had the occasion to observe the transition of the small penile lesion of lymphogranuloma venereum into a pigeon-egg sized bubonulus at the same site. Extragenital infections with lymphogranuloma venereum have been observed also. I described 2 such cases where the virus had invaded the tongue following perverted intercourse.

It is not always easy to trace the disease to a definite source of infection. There must be virus carriers, for the most part among prostitutes where we are unable to see manifestations of lymphogranuloma venereum. They must be the source of infection for many infected men.

Most of our patients were infected in New York City where lately lymphogranuloma venereum has been made a reportable venereal disease. Twice we have seen syphilitic chancres with a positive dark field followed by a typical lymphogranuloma venereum adenitis. We have also observed mixed infections of lymphogranuloma venereum with chancroid or venereal granuloma.

In conclusion I want to add that every person who has had lymphogranuloma venereum especially women, should have an examination of the rectum once or twice a year in order to prevent serious rectal strictures.

Dr. Boris A. Kornblith, *New York City*—Among a group of 375 cases of lymphogranuloma venereum observed at the Department of Health Clinic and the Mount Sinai Hospital a number exhibited clinical manifestations of a generalized nature.

Arthralgias developed in 10 cases, approximately 3 per cent. This complication developed

mainly in cases of long duration and more often among those with chronic rectal lesions.

The involvement was migratory in type, the larger joints being involved first. The knee joint was the one most often involved. From there the pain would migrate to the elbows, wrists and finally to the small joints of the hand. Less often both small and large joints were involved simultaneously. The pain is definitely within the joint and is severe enough to cause complete incapacitation. It may last for weeks on end.

These joint manifestations are amenable to treatment with intravenous Frei antigen. After as few as two injections within a period of three days the pain is definitely relieved.

Hepatosplenomegaly was present in at least 5 cases. This observation was made on acute cases. The enlargement was moderate. The liver edge was smooth and tender and the splenic enlargement was moderate. The hepatosplenomegaly receded with the subsidence of the acute symptoms.

Generalized adenopathy simulating infectious mononucleosis or lymphatic tuberculosis was observed in 5 cases. The adenopathy occurred for the most part at the onset of acute symptoms, associated with fever, sweats, and loss of weight. There was likewise an increased monocyte and eosinophil response in the blood smears. This picture was transitory in character. In 1 case however a submental node broke down. Pus removed from this node yielded satisfactory Frei material.

A generalized adenopathy during the course of treatment with Frei antigen was likewise observed. The adenopathy is moderate and includes a splenic enlargement and subsides within a two-week period after onset.

A maculoerythematous rash occurred in 3 cases. A rise in temperature to 102 F, a focal reaction to the Frei test and local glandular enlargement associated with the appearance of a generalized maculoerythematous rash occurred in 1 case after the initial injection of 0.1 cc. of Frei material for skin testing.

The manifestations already mentioned and those included in this discussion point to the systemic manifestations of lymphogranuloma venereum more of which will come to light as the interest in this disease increases.

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Doctors are always working to preserve our health and cook to destroy it but the latter are the more often successful—Diderot.

The widely quoted statement that the Chinese pay their doctors to keep them well instead of to cure their illnesses has no basis in fact.



# The Woman's Auxiliary

To the Medical Society of the State of New York

**S**URELY, some 22,000 women can't be wrong! The reason for this opening statement was my attendance at the seventeenth annual convention of the Woman's Auxiliary to the American Medical Association recently held in St. Louis, where it was a privilege to have been a member of the House of Delegates to that body.

Here members from thirty-nine states, and the District of Columbia brought proof of the vast extent of woman's influence, both civil and social. While interests and activities of necessity were varied, the common incentive of all was education, propagation, and preservation of health. Also, of general concern were the forces threatening the high standards of present-day medicine.

The convention was one to be remembered, reminiscent of the hospitality for which the South is famed, yet hustling enough to please one from the North. A gracious and efficient general chairman of this large convention, together with a capable committee, had carefully planned each day. There was no reason for any doctor's wife to have been bored or lonesome while her husband enjoyed his scientific sessions and social contacts.

The mornings were devoted to the serious board of directors' meetings, the formal convention opening, the House of Delegates, and general meetings and conferences. For the remainder of the day, delightful teas, visits to beautiful private gardens, luncheons, sight-seeing tours, a buffet supper and a fashion show, and a bring-your-husband dinner were among a few of the outstanding events that kept one busy.

The splendid reports of the national chairman of committees and those of the state presidents were an inspiration to those present. To hear the state president of Idaho announce that auxiliary members in her state drove eighty-five miles to meetings impressed one considerably. To have been told that the State of Arkansas had helped forty-three students with fifty-three loans seemed an achievement. The State of Georgia had sponsored sixty-two public relations programs and fourteen radio health talks. Thousands of pamphlets had also been distributed to laymen.

In a health essay contest, for which prizes were awarded by the auxiliary, ten thousand school children of Minnesota had written essays on "Tracking Down the Foe of Youth—Tuberculosis." In cooperation with the medical society, many speakers had been placed before lay groups. Supplies for the visiting nurse service were made in many states.

A number reported legislative activities. Nineteen of these had study programs of such, while another had reported that it had been of assistance in having the Basic Science Law enacted. All states reported active programs for cancer, syphilis, and tuberculosis control.

The State of Pennsylvania pointed proudly to a record hard to surpass. Outstanding work had been done in public health and public relations and legislation. Some \$33,000 had been raised for the families of needy physicians. Occupa-

tional therapy work in the hospitals of the state was mentioned by Indiana.

The exhibits of each state were viewed with great interest. Had there been an award, by general consent, the New York State exhibit, made by Mrs. Henry L. Hirsch, would have received it. One could not fail being impressed with the wide scope of activities. The projects were numerous and varied, and there were many of noteworthy attainment.

Our president, Mrs. G. Scott Towne, read the report of New York State, which had been written by the immediate past-president, Mrs. Daniel Swan. It was with real pride that those present from this state heard the chairman of the national committee on membership award announce that New York had, for the second time, been awarded the trophy for the largest increase in membership. This trophy was graciously accepted by the president on behalf of the state auxiliary. In the national election of officers, New York was honored to have had the organizing president, and the first president of the state auxiliary, Mrs. John L. Bauer, chosen for the office of national recording secretary.

Although the convention has become another pleasant memory of association with the doctors' wives of this great country, we have returned with added enthusiasm—a keener realization of all that this national body has stood for, and the appreciation that it was a privilege to have attended as a member.

If, as the *New York Times* has stated in a recent issue, we are a nation of joiners who form national associations and hold national conventions, then—"Today we are of a mind to be thankful for this joining instinct. It is, after all, the voluntary action of free men. Basically, it is the very same thing as the instinct for co-operation which is so popular among the democracies of today. To join, to stand together, to rally in the hour of need, is a fundamental American trait."

Surely, some 22,000 women can't be wrong!

Mrs. Luther Holden Kice—*president-elect of the Woman's Auxiliary to the Medical Society of the State of New York*

## Cayuga County

The auxiliary annual dinner, held in June at Springside Inn, was enjoyed by the many doctors and their wives who attended. An evening of delightful entertainment was furnished by Mr. Clarence Coddington who guided his audience on a tour of Bermuda with his beautiful colored motion pictures which he took of the various places of interest he visited.

## Orange County

The June meeting of the Woman's Auxiliary to the Medical Society of the County of Orange was held at the summer home of Dr. and Mrs. George O. Pobe, of Port Jervis, Twin Lakes.

Pennsylvania. This was not just a meeting but a day of enjoyment for the members who attended.

During the business meeting it was voted to donate \$25 to 'Braeside' the Orange County Health Camp for underprivileged children. On July 11 the auxiliary was invited to 'Braeside' as the guest of Miss Helen Watkins, the able conductor of the camp. After the meeting luncheon and a social afternoon were enjoyed. In the evening the members of the Orange County Medical Society joined their wives for a delicious buffet supper.

The tea given on June 21 at the Hempstead Country Club, Port Washington, Long Island for the benefit of the Physicians' Home was attended by Mrs. H. F. Pohlmann, president of the Orange County Woman's Auxiliary and Mrs. H. F. Murray recording secretary. About 175 guests attended.

### Schenectady County

For their final assembly in June, members of the Woman's Auxiliary to the Medical Society of the County of Schenectady enjoyed a delightful luncheon and meeting at the home of Mrs. J. C. Younie. Important business of the day was election of officers for the new term as follows: Mrs. William Malha, president; Mrs. A. W. Greene, president-elect; Mrs. Frank van der Bogert, first vice president; Mrs. A. S. Grusser, second vice president; Mrs. E. M. Stanton, recording secretary; Mrs. J. M. Blake, secretary; Mrs. Arthur Congdon, treasurer; and Mrs. David Vrooman, historian.

With every good wish to each auxiliary for a pleasant summer vacation and that the coming year may bring interesting activities to be recorded on our JOURNAL page.

### FIGURES CAN LIE

That a high quality of care has been given to the sick poor in the past is generally admitted and is attested by adequate statistical proof of the reduction in morbidity and mortality to their present low levels among such persons.

Some people will always need medical attention, but the reasons for this are not largely if at all the inability of these sick to pay for the cost of necessary treatment but chiefly the result of ignorance, superstition and misinformation growing out of religious beliefs and faith in the

promotion of advertised medicaments. That anything like one third of the sick now lack medical care or that an even larger proportion of the population is hindered from gainful employment by preventable and remediable but uncared for disease as the peroration of the technical committee would try to persuade us with statistics and emotional publicity, is just so far from the truth that it will be forgotten by the public and by the physicians of this country who know it is not so. —Haven Emerson M.D.

### HOME TRUTHS FOR ARMCHAIR PUNDITS

We are now the possessors of better general health, are less afflicted with preventable disease, are more secure in the survival of our offspring to maturity and have an average expectancy of life greater than that of any population group in the history of man comparable in size, variety of races and distribution in age, occupation and economic and climatic conditions. We are today at the very zenith of a march of progress toward national health. Never before in this or any other continent have any 130,000,000 people recorded such low death rates as reported in the

United States for the year 1938 for all causes for tuberculosis, typhoid, diphtheria and infant mortality. Not in our time has maternal mortality been so low, or the death rate from pneumonia.

And yet the armchair pundits in Washington tell the people of the United States that our public health services are grossly inadequate. Of course this language is used to develop dissatisfied faction with the present so that people will tolerate taxation for the future.

—Haven Emerson M.D.

# Public Health Notes

J ROSSLYN EARP, L R C P, Dr P H  
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## Appendicitis Mortality

THE death rate from appendicitis in the United States is exceeded only by that in Canada but it is on the decline. Last December the Metropolitan Life Insurance Company published tables showing not only international death rates but death rates of the various states of the Union both for the periods 1930-31 and 1935-36. While the international rates show as many increases as decreases, only one state of the United States, namely Arizona, shows an increase. The change in the rate in New York State is -11.8 per cent, which is a measurable decrease. That the progress shown in the Metropolitan's table does not stop in 1936 is shown by the following rates, which have been prepared for me by Dr J V DePorte

Upstate New York		
Year	Deaths	Rate per 100 000 Population
1928	796	14.4
1929	825	14.7
1930	833	14.7
1931	858	15.0
1932	884	15.3
1933	930	15.9
1934	874	14.9
1935	829	14.0
1936	840	14.0
1937	765	12.7
1938	661	10.9

The high appendicitis death rate in this country has been attributed to various causes. One suggestion is that inadequate hospital facilities result in unnecessary delay. This is supported by the exceptionally high rates for the mountain states. Another suggestion is that appendicitis is a disease of high living, the death rate of the highest social class being two and one-half times as great as that of the lowest, according to the statistics of the registrar general of Great

Britain. A statistical study has recently been made by the Medical Research Council.<sup>1</sup> Their report is reviewed in a leading article in the *Lancet* of April 29, page 994.

## Euthanasia on the Air

MR F J SMITH, Director of the Bureau of Narcotic Control, directs my attention to a significant coincidence. On March 5 euthanasia was made the subject of a radio play broadcast over a national hookup. On March 8 one of the investigators of the bureau was called upon to investigate a case of suicide. The circumstances in the play and in the real life drama were sufficiently similar to create a suspicion of cause and effect, especially when one remembers the recognized influence of suggestion on suicides. Perhaps this is just a part of the price we pay for freedom of the press and of the air—the lesser of two evils.

To prevent the improper use of narcotics for addiction or for suicide, physicians are urged to guard their prescription blanks. In a number of instances the bureau has had to deal with violations of the law involving the use of forged or altered prescriptions. The federal and state regulations are designed to be a protection to society rather than a thorn in the practitioner's flesh. Colleagues who would like to conspire with Mr Smith to make them more of the first and less of the second are invited to arrange for a discussion at a place to suit their convenience. Proposals of this nature should be addressed to the Bureau of Narcotic Control, State Health Department, Albany, New York.

<sup>1</sup> Young, Matthew, M D, and Russell, W T. Appendicitis. A Statistical Study. Spec Rep Ser med Res Coun Lond No 233. H M Stationery Office 1939. P 64. 1s.

## SHORTAGE OF DOCTORS IN GERMANY

Germany now finds it has a shortage of physicians and will cut the period of medical training by two years. Omissions from the curriculum, however, have been balanced by new courses, and reports say that the same amount of work must now be done in three and a half years as was done in five and a half. It is hard to see, remarks the *Detroit Medical News*, how this high-pressure training can have other than a deadening effect upon the spirit of science in medicine. Such crowding of courses and such forced reception of facts can leave little time for critical

thinking or contemplation. Can leadership in clinical and experimental medicine be expected to develop in men so trained? Can a fair standard of practice be maintained or keep pace with scientific advance on the basis of physicians so prepared?

This drastic revision in the method of training German physicians is to be regretted. It is the path to mediocrity. One cannot escape the conclusion that the welfare of a profession and of a nation has been sacrificed to political expediency.

# Medical News

## General

### Annual Conference of New York State Health Officers

Outstanding authorities in the fields of medicine, nursing and public health were among the speakers for the annual conference of health officers and public health nurses conducted June 27, 28 and 29 at Saratoga Springs.

Dr. Godfrey gave the first address at the opening session on June 27 followed by addresses by Dr. Abel Wolman, of Baltimore, president of the American Public Health Association and Dr. Thomas Parran, of Washington, former New York State Commissioner of Health and now surgeon general of the United States Public Health Service.

Governor Herbert H. Lehman was the first speaker on the afternoon program and other speakers included Dr. James L. Miller of the College of Physicians and Surgeons of Columbia University and Dr. Karl Meyer, director of the Cooper Foundation of San Francisco.

Speakers for the morning session on the second day included Dr. Dixon Ryan Fox, president of Union University, Schenectady; Miss Pearl McIver, R.N., of Washington, senior consultant public health nurse of the United States Public Health Service; and Dr. William E. Mosher, of Syracuse, dean of the Maxwell Graduate School of Citizenship and Public Affairs of Syracuse University. Those who spoke during the afternoon session were Dr. John E. Gordon, of Boston, professor of preventive medicine and hygiene at the Harvard School of Public Health; Dr. E. W. McHenry, of Toronto, assistant professor of physiological hygiene of the School of Hygiene, Toronto University; and Dr. Maxwell Finland, of the Thorndike Memorial Laboratory, Boston.

At the final morning session on June 29 the speakers were Dr. Simon Flexner, director emeritus Rockefeller Institute for Medical Research, New York City; Homer Folks, secretary of the State Charities Aid Association, New York City; Professor Henry N. Ogden of Cornell University, Ithaca; and assemblyman Lee B. Maillor of Cornwall-on-Hudson, chairman of the legislative health commission.

Public health nurses conducted a symposium of field nursing problems on June 28. The annual dinner sponsored by the Health Officers Association and the State Organization for Public Health Nursing was held Wednesday night in the Grand Union Hotel.

One of the features of the conference was a display of exhibits on personal and community health placed on view by the State Department of Health and its various divisions and organizations.

### Associated Physicians of Long Island

Discussion of modern methods of treatment and technique featured the annual spring meeting and outing of the Associated Physicians of Long Island at the Nassau County Tuberculosis Hospital at Farmingdale, in June.

More than 100 physicians and surgeons from all sections of Long Island listened to papers and

took part in the general discussion. Dr. E. Jefferson Browder, of Brooklyn, president of the society, conducted the scientific session and the brief business meeting following at the hospital where the visitors were welcomed by Dr. J. C. Walsh, superintendent.

Later at the annual dinner at the Bethpage State Park Clubhouse the doctors heard Courtney R. Hall, Ph.D., president of the Nassau County Historical Society and professor of history at Adelphi College, discuss Long Island's contribution to medicine and surgery. Dr. Hall is the author of a history of Dr. Samuel Latham Mitchell who lived and practiced in the town of Oyster Bay before and after the war of the revolution.

Dr. Hall discussed "Doctors and the Rise of Civilization on Long Island." Among the physicians and surgeons he discussed in addition to Dr. Mitchell were James DeKay, Edwin W. Webb, Valentine Seaman, Valentine Mott and David Hosack.

Dr. Hall discussed the work of physicians during the Indian Revolutionary Civil, and other wars, with their battles in the earlier wars against smallpox, typhoid, dysentery, ulcers, and other ills.

Papers on surgery in the treatment of pulmonary tuberculosis were read by Dr. Walsh, superintendent of the hospital, and Dr. Carl A. Hetteshimer, with Drs. Ralph F. Harlow and Charles E. Hamilton leading the discussion. Dr. Frank Schied read the paper on calcinosis, with Dr. Arthur Goetsch leading the discussion.

A paper on enterectomy in surgical treatment of hepatic cirrhosis was read by Dr. Charles C. Murphy of Amityville, with Dr. George A. Merrill and Dr. Herbert T. Wikle leading the discussion.

Officers of the association in addition to Dr. Browder as president are Dr. John B. Healy of Babylon, president-elect; Dr. Harold R. Merwarth, Dr. Murphy and Dr. Henry S. Acken, all of Brooklyn, as first, second and third vice-presidents, respectively; Dr. Edwin A. Griffin, of Brooklyn, treasurer; and Dr. Edward Overton, of Hempstead, secretary.

### Typhoid in the Bubbling Brook

A recent report from the Saranac Lake district tells how typhoid fever was traced upstream in a bubbling brook via a poorly kept privy to an aged typhoid carrier. The district state health officer gives full credit to the local health officer for this piece of epidemiology. The activities of the district office, he writes, consisted only of a confirmatory investigation and the concomitant paper work. The local health officer began his investigation promptly on receipt of notification of a case of typhoid fever. He discovered that water in the household of the sick person was dipped from the nearby brook. This led not only to the discovery of the typhoid carrier upstream but also to the discovery of two additional cases of mild typhoid next door to the reported case but hitherto unrecognized. They also had used water dipped from the brook.

## County News

### Albany County

The program of the Medical Society, County of Albany, on June 28, was featured by papers on "Lymphogranuloma Venereum Report of Two Cases" by Dr. James A. Hogan, "Allergic Conditions That Are Frequently Overlooked" by Dr. Harold P. McGan, and "Sciatic Pain Its Relationship to Displacement of Intervertebral Discs" by Dr. William P. Howard.

### Cattaraugus County

Dr. Clayton W. Green, professor of medicine at the University of Buffalo, addressed the Olean Academy of Medicine on June 13, at a dinner at "Honeybrook," on "Pneumonia."

Dr. Francis P. Keefe presided as toastmaster. An informal discussion was held in the evening.

Fifty physicians were present from Olean, Allegany, Kane, Bradford, Austin, Coudersport, Port Allegany, Franklinville, Austin, Delevan, Little Valley, and Cattaraugus.

### Cayuga County

"Socialized Medicine" was the subject of an address by Dr. Joseph Lawrence, executive secretary of the New York State Medical Society, at a dinner meeting of the Auburn Rotary Club on June 6. The meeting was arranged by the Cayuga County Medical Society.

### Chautauqua County

Medical insurance was discussed at the meeting of the Chautauqua County Medical Society at the Shorewood Country Club on June 14. No final action was taken, and the subject was referred to the economics committee.

The eighth annual interstate summer meeting of the Medical Society of the County of Chautauqua will be held at Chautauqua Institution, Wednesday, July 26, 1939.

This meeting offers a wide variety of scientific papers, cultural entertainment, and sports in a setting that is ideal for renewing old acquaintances.

The program for the morning session has appeal for the specialist as well as the general practitioner and is made up as follows:

Ten o'clock, "Reduction of Mortality Following Coronary Occlusion," by Dr. G. E. Hall, of Toronto, Canada, 10:45, "Diagnosis and Management of Cancer of the Breast," by Dr. Arthur C. Christie, of Washington, D. C., 11:30, "Sulapyridine in the Treatment of Pneumonia," by Dr. Russell L. Cecil, of New York City.

At the close of the morning program, luncheon will be served in the Hotel Athenaeum.

The afternoon session includes papers of interest to the laity by Drs. Cecil and Christie to be given in the Amphitheater. There will also be a golf tournament with attractive prizes, as well as various other entertainment.

The Chautauqua Institute makes a special effort to offer entertainment for all, and will have an attractive program of lectures and music throughout the entire day. All events will be on daylight-saving time. All doctors, their families, friends, and guests are cordially invited to attend this meeting.

### Chenango County

The semiannual meeting of the Chenango County Medical Society was held on June 15 at Norwich. The Norwich Pharmaceutical Company acted as host to the doctors who were shown through the company's plant. The business session was held at the Canasawacta Country Club at 5 P. M., after which the members enjoyed a dinner. Thirty-five physicians participated in the dinner and meeting. Dr. Don U. Gould, society president, presided at the business meeting. Dr. John H. Stewart is secretary and treasurer.

### Cortland County

Two physicians of the county, fifty years in active practice, were honored at a dinner by the Cortland County Medical Society at Hotel Cortland on June 16. The medical society has adopted the custom of recognizing the half-century service of its members.

The dinner honored Dr. Duane E. Ensign, of McGraw, and Dr. John E. Leonard, of Harford Mills. As the older of the two, Dr. Ensign received the society's fifty-year cane, which was held by Dr. H. J. Johnson until his death a few weeks since.

Dr. Ensign's first fifty years in medical practice were completed last fall. Dr. Leonard's first half-century mark will be reached in August.

### Erne County

Plans of the Medical Society of Erne County for a nonprofit medical indemnity insurance system for the eight counties of the eighth judicial district occupy an improved position following Governor Lehman's approval of a permissive bill authorizing such service, according to the Buffalo News.

Dr. Harvey P. Hoffman, chairman of the Erne County committee appointed to study the feasibility of establishing a medical indemnity system, said that details of the plan have not yet been completed but that it is hoped to present it to the public about September 1.

He said the plan will be presented to the New York State Medical Society for approval. If that is forthcoming, the plan will be submitted to the State Department of Insurance.

Dr. George R. Critchlow, Dr. Hoffman said, has been appointed acting medical director for the program to see that all the technical parts of the plan are brought out, to act as public relations counsel in presenting the plan, and to get it into operation, if it is approved.

Tentative plans contemplate the following yearly rates, subject to change, for specified insurance guarantees. For a single man, \$18 will bring \$200, for a man and wife, \$26 will bring \$300, for a man and wife and children under 18, \$36 will bring \$400.

The New York State Medical Society has adopted seven cardinal principles for a medical insurance plan. These principles include statements that:

The plan must be nonprofit, it should involve cash indemnity and not medical service, patients must be free to choose qualified physicians, fees should not be below those of the workmen's compensation schedule, but higher fees may be charged to persons in higher income groups, all

features of medical service must be controlled by the medical profession

Dr Francis D Leopold was elected president of the Erie County Academy of Medicine at the annual meeting on June 7 in the group's headquarters in Hotel Statler. He succeeds Dr Abraham H Aaron.

Other new officers are Dr A Wilnot Jacobson, secretary Dr George E Slotkin, assistant secretary Dr William F Jacobs treasurer and Dr George A Himmelsbach trustee

#### Franklin County

Members of the Franklin County Medical Society gathered at Saranac Lake on June 14 to attend the semiannual meeting at the John Black Memorial room on Church Street

Dr W Warriner Woodruff spoke on "Fractures of the Neck of the Femur" Dr LeRoy H Wardner on Sulfapyridine in Pneumonia Dr Edwin M Jameson on "Some Common and Uncommon Urological Conditions" and Dr John R. Murphy on "Pyloric Stenosis in the Newborn." A clinical pathologic conference was conducted by Dr A J Vorwald and Dr Daniel M Brumfield. A luncheon at the Hotel Saranac preceded the meeting. The fall session of the society will be held in Malone in October

Thirty doctors from twelve states and seven foreign countries attended the 1939 session in May and June of the Trudeau School for Tuberculosis at Saranac Lake under the direction of Dr Leroy U Gardner who succeeded Dr Edward R Baldwin this year as director

#### Herkimer County

The meeting of the Herkimer County Medical Society on June 13 was devoted largely to a discussion of the smallpox situation and the necessity for vaccination

The Dr A. Walter Suiter lecture was given by Dr Emerson C Kelley of Albany whose topic was "The History of Medicine Egyptian and Greek Periods." He traced the development of the practice of medicine from a period beginning about 4000 B.C.

#### Kings County

A cooperative campaign by physicians and pharmacists to supply health information to residents of Brooklyn Heights, South Brooklyn, Red Hook, and Bay Ridge has been launched. It is announced by Dr Lewis W Pearson president of the South Brooklyn Medical Society

The Cooperative Health Committee of South Brooklyn, headed by Dr Pasquale J Imperato, will disseminate news bulletins, health lectures, and direct contact with the public by doctors and druggists. The committee is organized for preventive medicine.

A two-hour program of fun and entertainment was staged on June 5 for more than 800 persons in the auditorium of the Brooklyn State Hospital, Clarkson and Troy Avenues, under the auspices of the recently formed Committee on Social Activities of the Medical Society of the County of Kings. Musical offerings and skits were presented by the doctor members of the society and their friends

The program featured the debut of the Doctors' Choir which gave four selections and of the Doctors' Theater, which presented two skits on

titled "Sunshine from a Lamp" and "Be Yourself." Dr H Tevel Zankel was master of ceremonies

An amusing medical lecture on the subject of Groans was given by Dr Nathaniel Solomon. Selections were played by a Doctors' Swing Trio composed of Dr Phillip Ollstein, violinist Dr R. C. Gerard pianist and Dr Abraham Segal drummer. Other offerings included a piano duet played by Mrs. Molly Hendleman and Mrs. Little Levine and songs by three soloists, Mrs. Pauline Schneider, Dr Phillip Bond and Frank Cusumano

Appearing in the cast of the skits were Dr Silas J Low, Dr Irving Matusoff, Miss Helen Wyman, Bernard Kushner, Miss Eva Baren and Peter Larsen. Joe Feltelson was stage director

Offerings of the choral group were under the direction of Dr Abraham Rosenthal. Those of the theater group were under the direction of Dr Zankel. A theremin solo was presented by Paul Lippman

The annual dinner of the Medical Society of Bay Ridge was held at the Marine and Field Club on June 13

Dr William Henry Rankin, chief of the medical staff and senior surgeon at St. John's Hospital, Brooklyn, for thirty years, died at his summer home near Kingston, Ontario on June 2 at the age of 74

#### Montgomery County

The semiannual meeting of the Medical Society of Montgomery County was held on June 20 1939 at the Hotel Beech Nut, Canajoharie, New York. A complimentary dinner was served

The program was "Modern Concept of Coronary Disease" by Dr James F Rooney of Albany and Medical Jurisprudence by Carl S Salmon, attorney-at-law of Amsterdam

#### Nassau County

About 100 Nassau County physicians attended the annual stag dinner given by the Medical Society of Nassau County in honor of its retiring president Dr Louis H Bauer of Rockville Centre, held at the Wheatley Hills Golf Club on June 14

The dinner was preceded by the annual golf tournament in which the medical staffs of Nassau, North Country Community and South Nassau Communities hospitals played for the trophy offered by James E Stiles, publisher of *The Nassau Daily Review-Star*

The Nassau Hospital staff winner in the golf competition, received the trophy at the dinner from Mr Stiles, who was an honored guest. Besides Dr Bauer and Mr Stiles at the table of honor were Dr Eugene Calvelli, of Port Washington, new president of the society, Dr Aaron L. Higgins of Rockville Centre, president-elect, Dr Charles W Martin, of Lawrence, vice-president, Dr Earle G Brown, Nassau County health commissioner, Dr Theodore J Curphey, medical examiner, and Dr Alexander J McRae, superintendent of the Meadowbrook Hospital.

The evening session was in the form of a friendly gathering, without formal program or scheduled addresses

### New York County

The Medical Society of the County of New York has passed the 5,000 mark in its steadily continuing growth

An analysis of blood tests required of applicants for marriage licenses from July 1, 1938, when the law went into effect, through December 31, reveals that less than 1 per cent of those examined had syphilis, the New York City Department of Health reports. Premarital blood tests were made on 58,903 persons with positive results in 559, or 0.95 per cent. Of the total number, 52,585 tests were made by health department laboratories. When the applicants were classified into whites and Negroes, the percentage of infection among the whites was 0.61 and among the Negroes it was 9.82. In 4,386 cases the color was not stated. Among the 559 positive tests, 319 were in men and 240 in women.

Seven per cent of New York City's unwed mothers in 1938 were girls under 16. This was revealed by Dr John L. Rice, Commissioner of Health, at a public hearing of the Board of Education on the need for teaching "the facts of life" in the schools. Many of the girls were quoted as saying that they had not understood what they were doing, and experts agreed that had they been recipients of adequate sex instruction and under proper parental control, their plight would have been avoided.

### Oneida County

Low-cost nonprofit medical insurance will be available to Central New York residents within a short time, said H. C. Stephenson, director of the similar Hospital Plan, following signature by Governor Lehman of the bill legalizing establishment of such medical plans, as quoted in the *Utica Press*.

The medical insurance plan was actively backed by the Oneida County Medical Society and the Utica Academy of Medicine, whose organizing committee headed by Dr F. M. Miller, Sr., and Dr William F. Hale has held several meetings recently to perfect details.

The plan will guarantee subscribers all surgical and medical care in the home, physician's office, or hospital. It is expected that the new organization will submit to the Hospital Plan, Inc., a proposal whereby the same facilities now used for the Hospital Plan will be employed, resulting in considerable saving of overhead.

Twelve counties, 19 participating hospitals, and 13 territorial desk space offices are now a part of the Hospital Plan and these would immediately be available to the Medical Plan, thus assuring volume operation from the very beginning.

### Onondaga County

Dr Wardner D. Ayer, in 1912, read his first paper before the Syracuse Academy of Medicine, at which time he presented 28 cases of brain tumors, recalls the *Bulletin* of the county society.

On May 16, 1939, at the last meeting of the Syracuse Academy of Medicine, before a large, interested, and appreciative audience, he offered "A Résumé of Neuro-Surgical Pathology in Syracuse," covering twenty-five years of personal observation.

The presentation was in two parts—a brief but complete analysis of the cases and end results,

compiled and read by Mark Conan, a fourth-year medical student in the Syracuse University Medical School, and a discussion of the diagnosis, pathology, treatment, and end results by Dr Wardner D. Ayer. Dr Ayer's discourse was illustrated by numerous lantern slides and microphotographs.

Drs A. B. Siewers, N. R. Chambers, and W. Williams, of Rochester, discussed the paper, adding personal experiences and reminiscences. Dr A. D. Becker, a newcomer to Syracuse, who is limiting his practice to neurosurgery, made a plea for the future. He expressed the hope that close cooperation between the physician who first sees the case requiring neurosurgery and the neurosurgeon would, by early diagnosis and treatment, improve the end results.

### Orange County

The Orange County Bar Association and the Orange County Medical Society, meeting jointly in the Palatine Hotel, Newburgh, on May 25, heard Dr Alexander D. Gettler, chief toxicologist of New York City, criticize coroners and medical examiners for having too little equipment for the diagnosis of the actual cause of death in cases of violence. Charles E. Taylor, surrogate, presided at the meeting which was attended by about 300 lawyers and doctors.

### Putnam County

At the annual meeting of the Putnam County Medical Society held at the Butterfield Hospital, Cold Spring, on June 14, the following officers were elected for the year 1939-1940: president, Henry W. Miller, of Brewster; vice-president, Robert S. Cleaver, of Brewster; secretary, John T. Jenkin, of Lake Mahopac; and treasurer, Alexander Vanderburgh, of Brewster.

Dr K. G. Hansson, director of physical therapy at the New York Hospital, addressed the society upon the subject, "Physical Therapy in General Practice."

### Queens County

Cornerstone laying ceremonies of the new \$350,000 Corona Health Center, Junction Blvd. and 34th Road, were held on June 7, with Mayor F. H. LaGuardia officiating.

Health Commissioner John L. Rice was chairman at the ceremony. Others participating included Borough President George U. Harvey, Dr Joseph Wrana, president of the Queens County Medical Society, Colonel Maurice B. Gilmore, regional director, Federal Emergency Administration of Public Works, and Commissioner Irving V. A. Huie, of the Department of Public Works.

The Corona Health Center is the second unit for Queens in the Health Department's district health program.

The Center is scheduled for completion next November. The structure will house maternity and child health services, tuberculosis and venereal disease clinics, complete facilities for health education, and will provide quarters for cooperating health and welfare agencies working in the Corona district.

The Rockaway Medical Society elected these officers at its May meeting: Dr Charles W. Martin, president; Dr Alfred F. Calvelli, vice-president; Dr Irving G. Frohman, secretary; and Dr Herbert Gordon, treasurer.

The newly-elected officers will serve for the 1939-1940 period

#### Suffolk County

The Suffolk County Board of Health has issued a ruling that all milk sold in the county after January 1 1940 shall be pasteurized. The ruling followed a recommendation from the Suffolk County Medical Society. Only exceptions to the law will apply to producers of Certified and Special Grade A.

#### Sullivan County

The Roscoe Commercial Club tendered a testimonial dinner to Dr John A Miller of Roscoe, on June 1 at the Campbell Inn in honor of his fifty-two years' service in the practice of medicine in that village and vicinity.

Dr Miller is now 77 and continues active in his practice. Notwithstanding many flattering offers to move to other localities that offered greater monetary rewards says the *Liberty Gazette* he has always remained in Roscoe where every man, woman, and child is his friend.

#### Washington County

Dr Silas Jeremiah Banker of Fort Edward who has practiced medicine over sixty years was recently reappointed school physician for his twenty-second consecutive year at the age of 83. We are assured by the *Glens Falls Times* that he is as active and spry as he was thirty years ago.

Dr Banker was president of the Washington County Medical Society in 1887 and served as its secretary from 1907 to 1937.

#### Westchester County

A stated meeting of the Yonkers Academy of Medicine was held at the Amackassin Club on May 17. The annual election of officers was held and Dr Eugene F Kelley was named the Academy's new president succeeding Dr George B Stanwix. Dr Wilbur W Stearns was elected first vice-president. Dr Virgilus Minervini second vice-president. Dr Valentine Nowicki was named recording secretary. Dr E J May chick, corresponding secretary, and Dr Henry F Preische treasurer. Dr Jacob Kertzman and Dr W J Halloran were named councilors. In the scientific session, Dr Maurice Louis

Malius presented a paper on Peritoneoscopy with lantern slides.

#### Yates County

Socialized medicine and the use and dangers of the new drugs, sulfanilamide and sulapyradine were among the topics discussed by more than 150 physicians and surgeons from 22 New York State and Northern Pennsylvania counties June 22 at the 40th annual meeting of the Lake Keuka Medical and Surgical Association at Keuka College near Penn Yan.

The program opened with an address on socialized medicine by Dr James H Borrell, of Buffalo president-elect of the New York State Medical Society. Dr William W Britt of Tonawanda association president presided. Papers included a wide variety of timely subjects which should appeal to the general man as well as to the specialist. One was by Dr Stuart B Blakely of Binghamton, on 'The Psychology of Pregnancy.' Participating in the discussion were Dr E. C Hughes of Syracuse. Dr Irving Potter of Buffalo, and Dr James K. Quigley of Rochester.

The field of gastroscopy opened by the development of new instruments was reported on by Drs. Harry M Murphy and Frazer D Mooney of Buffalo in a paper 'Gastroscopy and Its Diagnostic Value.'

Four Buffalo medical men discussed the paper—Dr Edward D Cook. Dr Stockton Kimball. Dr Herrmann E Bozer, and Dr Abe Aaron.

Following luncheon in the college dining room the afternoon session opened with Dr Carlyle Haines and Dr L. Emmitt Brown of Sayre Pa. reporting on the use and dangers of sulfanilamide and sulapyradine.

Leading the discussion were Dr Frank Meyers of Buffalo. Dr Wesley T Pommerenke, of Rochester. Dr Ramsdell Gurney of Buffalo and Dr George V Taplin of Rochester.

Two surgeons from the Lahey Clinic in Boston gave a paper on 'Surgical Management of Gastric Lesions'—Dr Samuel F Marshall and Dr Richard B Cattell. Their paper was discussed by Dr William D Johnson of Batavia. Dr George Cotts, of Jamestown and Dr Martin Tinker of Ithaca.

The closing paper on 'Facts and Fallacies Regarding Proctologic Diseases' was given by Dr Martin S Kleckner of Allentown, Pa. with Dr Desmond McKenney of Buffalo leading the discussion.

### Deaths of New York State Physicians

Name	Age	Medical School	Date of Death	Residence
Irwin S. Altman	29	Buffalo	June 9	Buffalo
Ernest A. Brooks	29	L. I. C.	June 9	Brooklyn
Emerson W. Hitchcock	77	N. Y. Hom.	June 26	Auburn
Isidor Mogil	53	Fordham	June 15	Bronx
Paul Outerbridge	79	Vermont	June 16	Manhattan
William H. Rankin	74	Queen's Canada	June 2	Garden City
Gustav Seeligmann	78	Freiburg	June 21	Manhattan
Henry Siff	76	N. Y. U.	June 19	Brooklyn



# Hospital News

## Hazardous Hospitals

EVERY county in the state which houses its tuberculosis patients in old frame-type buildings is urged by Dr Edward S Godfrey, Jr, state commissioner of health, to take immediate steps to avert a possible catastrophe. The warning is an aftermath of the fire which destroyed the Ontario County Tuberculosis Hospital at Holcombe, May 31.

"Only a combination of fortunate circumstances prevented probable loss of lives during that fire," Dr Godfrey declared. The institution at Holcombe was the first complete county tuberculosis sanatorium constructed in New York State. Factors which were credited by Dr Godfrey with probably preventing casualties in the Holcombe fire were its early discovery and its occurrence during warm weather and in the daytime.

"In addition, most of the patients who were not spending the holiday with their families were up and about and only three were confined

to bed. Had the fire broken out on a winter night and had the patients been unduly exposed to severe weather, the consequences might have been serious.

"For years the State Department of Health has drawn attention frequently to the danger of housing tuberculous patients in this and similar frame-type buildings. The destruction of the Ontario County Hospital re-emphasizes the need for better housing of the sick, particularly in several of the smaller counties served by the new state tuberculosis hospitals, all of which are thoroughly fireproof.

"During the past twelve years, two tuberculosis hospitals have burned, fortunately with no loss of life. But this is no guarantee for the future. Patients ill in bed should not be subjected to the risks prevailing in the frame-type of hospital building. Every county in which such a hazard exists should take steps at once to avert a possible catastrophe."

## Strike Up the Band!

Few concerts can thrill the heart more deeply than the glad music made with triangles, bells, and drums by a band of bedridden children, and the memory of one such concert lingers on for two years after its echoes have died away down the corridors of time. It was in 1937 that a reporter of the *Providence Journal* wrote a story about it, and it is reprinted in *The Modern Hospital*, with pictures of the little performers who, we hope, were long ago "discharged cured" and now romping with their playmates. The concert was in the Crawford Allen Memorial Hospital at North Kingstown, R. I., and the concert hall was the hospital schoolroom.

One teacher, Mr Callahan, brings in a phonograph while two others pass out bells, triangles, drums, tambourines, and clappers, as the reporter pictures it. There is one set of brass cymbals. It goes to a big girl sitting up in the last line of beds. One girl is arched on her back over a frame, but she isn't going to miss the fun.

Mr Callahan puts on a phonograph record of a piece with vehement rhythm—"Yankee Doodle" is a favorite. As the music springs forth, he beats time with a red stick, and motions one

group after another to join in, triangles, drums, and bells.

The faces take on a rapt expression. The room trembles with the measured sound, the air laughs with it. Suddenly there is the hearty clang of the cymbals. No percussionist in a great orchestra ever smote a grander blow.

A boy in bed is wheeled to the front of the room. He conducts the orchestra, keeping time and indicating what instruments he wants to sound. He couldn't lead the heavenly choir more blissfully.

These children probably will recover quite completely. Not many years ago, recovery would have been doubtful or impossible, and even now there are few hospitals so fine as this, which is at the seashore and country at the same time.

The rhythm band is one of the activities that help the children along the tedious road to better health, because rhythm and music are things of fundamental, if not always recognized, importance in the lives of human beings. The state federation of music clubs sponsors this project. Mr Callahan conducts classes also at the state hospital and at the state sanatorium.

## "Damaged Goods" Makes Another Hit

Not the old-time play, but the real thing, a display of goods damaged carelessly, was put on recently at Montefiore Hospital, in New York City, and was the hit of the year—so much so, in fact, that an annual return engagement is promised. Staged originally for the nursing department, it attracted employees from all parts of the institution, who enthusiastically contributed wrecked and ruined articles of every description till the exhibit became a chamber of horrors, perhaps, but also a worth-while object lesson. As described in *The Modern Hospital* by A. C. Donahue, R.N., superintendent of nurses at

Montefiore, ruined bed linen and wearing apparel were tacked on racks with an accompanying card bearing the following legend:

"Each piece here exhibited is a bed jacket, gown, bathrobe, or pajama that was torn by workers for the purpose of obtaining dust rags and wash cloths."

Pillow cases that had been used for floor cloths and hand towels used as dust cloths on the wards or for cleaning pots or machines in the kitchen were exhibited. A linen delivery truck was filled with torn linen representing the amount accumulated over one week.

Articles, such as air cushions, ice caps hot water bags, dressings small pillows adhesive plaster, and instruments were arranged on tables. These had been delivered to the hospital laundry as a result of the careless stripping of beds, dressing carriages and treatment tables. A placard called attention to each of these and to the danger of causing injury to the workers in the laundry, aside from the damage to laundry equipment.

Air mattresses were on display accompanied by descriptive legends. White chalk was used to mark off the damaged areas, punctures by pins or damage resulting from placing the mattress directly on top of the spring. Attention was called to the danger of blow-outs resulting from overinflation and to the damage to the rubber resulting from improper storage.

A pile of broken glassware such as intravenous and manometric tubes intravenous and hypodermoclysis flasks, insulin and other syringes of various sizes and expensive glass equipment in daily use on the wards was arranged to attract the eye. The card that accompanied this group taught a lesson in careful handling proper technique in sterilization, and the danger of having such equipment within the reach of irrational patients.

Comparatively new bed blankets were shown that had been ruined during the course of the treatment of dermatologic patients.

A number of bedpans dented and cracked, represented items damaged by violent contact with hard surfaces, such as being dropped on tile floors or improperly placed in the bedpan washer. A burned container, with rubber tubes syringes and needles gave evidence of the fact that too frequently articles put on to boil are allowed to boil dry and burn rendering them unfit for further use. Pillows badly stained with iodine mercurchrome, gentian violet, and other dyes

showed what happens when pillows are not protected by rubber cases while treatments are being carried out.

Practically new emesis basins and aluminum soap dishes were ruined when used as receptacles for burning pastilles. There was a dresser and its scarf that had been burned when a careless employee placed a lighted pastille on it. Bed spreads and blankets damaged by cigarette burns were on display each with its instructive placard pointing out the cause of the damage.

Several wheel chairs were exhibited. These had been damaged when they were left out on the open porches and bridges during bad weather.

Medicine and blood chemistry bottles that contained ink and hand lotions were on display with the notation that putting them to such uses probably accounted for the disappearance of these containers from the hospital wards. Torn and weather beaten window shades carpets and rugs badly stained with ink and shoe dressings desk dresser and table tops ruined by substances containing a high percentage of alcohol and vacuum cleaners and carpet sweepers damaged by misuse were collected and added to the exhibit.

No estimate was made as to the cash value of these articles but there were literally hundreds of items. The unique quality of the exhibit made it so attractive that employees from all departments came to view it passing from table to table and showing great interest in the history of each damaged article as it was described in its accompanying legend. This was the purpose of the display and the effect exceeded expectations. They subsequently experienced a decided reduction in the number of articles damaged or ruined by improper handling and carelessness. Follow up instructions on the wards then became part of the economy program.

## Newsy Notes

The National Hospital for Speech Disorders described as the first and only institution of its kind in the country" was dedicated on June 15. It is at Irving Place and 18th Street New York City and was made possible by a gift of \$250,000 from Lucius N. Littauer. President Roosevelt sent a message praising its work.

Mayor LaGuardia lashed out at the politicians who criticize the building program of his administration on June 7 at cornerstone laying ceremonies of the new \$360,000 Corona Health Center Junction Boulevard and Thirtieth Fourth Road, Queens.

He praised Health Commissioner John L. Rice and the splendid work of the health department in lowering infant mortality and the general death rate in the city. It is because of the cooperation of the people with the health department that we have been able to maintain such a good health record, the Mayor continued. "Notwithstanding the severe criticism we are getting from uninformed ignorant and vicious politicians who do not care about the welfare of the people of this city but care only for soft jobs and high salaries."

Mother Alice superintendent of St. Clare's Hospital in New York City who is known as the doctor of hospitals has sailed for Ireland to confer with Irish leaders on the great \$60,000 - 000 hospital program of the Irish Free State. She will place at the disposal of Prime Minister Eamon de Valera and officials who are in charge of the new hospital construction the results of her experience in organizing hospitals in the United States.

Her invitation to make a tour of Irish hospitals already constructed and to look over the plans for proposed buildings and suggest possible improvements was brought about through Sean O'Kelley Mr. de Valera's personal representative to the World's Fair.

Mr. O'Kelley who is in charge of the Irish Sweepstakes' proceeds which are devoted to hospital service, said that of the total of \$60,000,000 now accrued from this source one-third has been spent. Forty million dollars more now remains to be spent in buildings and equipment until every county in Eire shall have its own municipal hospital.

The Rochester Hospital Corporation will take no more individual subscribers and their families, as the income in this classification is found

insufficient to cover the cost of their hospital care, to say nothing of setting up a reserve for emergencies

. . .

The board of directors of the United Hospital Fund announces the formation of the Hospital Credit Exchange, a nonprofit organization, under the leadership of the United Hospital Fund and the Greater New York Hospital Association, to cooperate with voluntary hospitals in handling credit and collection problems

. . .

Private hospitals operated for profit must comply with the State Labor Relations Act under a decision made public on June 4. The State Labor Relations Board ruled in the case of the Adelphi Hospital, 50 Greene Avenue, Brooklyn, that the institution must comply with all provisions of the labor law because it is operated for private profit. The hospital had contended that the act exempted employees of all hospitals from its operation.

. . .

Dr. James Ewing, director of the Memorial Hospital for the Treatment of Cancer and Allied Diseases, in an address on June 14 at the opening of the hospital's new \$5,000,000 plant at York Avenue and Sixty-eighth Street, New York City, charged that "the extravagant demands and arbitrary practices of the labor unions increased the cost of the building by 20 per cent and more, forcing the hospital to cut about twenty feet off the length of the building and to

pinch quarters in many regions where they were most needed."

The opening of the hospital, the largest and most up-to-date institution of its kind in the world, which also will serve as the nation's most important center for the instruction of physicians in the diagnosis and treatment of cancer, was marked with ceremonies attended by a distinguished gathering of physicians, scientists, nurses, and leaders in many walks of life.

. . .

It is reported that the old Bradford Street Hospital in Brooklyn will be reopened to compensate for the loss of Trinity Hospital, which is to be razed to make way for a plaza.

. . .

St. Luke's Hospital, Amsterdam Avenue and 113th Street, New York City, will receive approximately \$145,000 from the estate of Mrs. Annabella Curtis, widow of the late Dr. B. Farquhar Curtis, who died at her residence, 383 Park Avenue, on October 31, 1938, it is revealed in a transfer tax appraisal.

. . .

A convalescent day camp has been established on Welfare Island by the New York City Department of Hospitals, to "receive as its guests, day by day, for medically prescribed periods of time, children and adults who will not or who cannot leave home, individuals who linger uncertainly and precariously just beyond the door of the hospital, not yet fit to resume their normal stations in life."

## Improvements

The new \$600,000 wing added to the Brooklyn Hebrew Home and Hospital for the Aged, which will make the institution the largest of its kind in the country, was dedicated at ceremonies attended by 1,200 persons on June 4.

. . .

The Amsterdam City Hospital is building a \$30,000 addition.

. . .

The new \$500,000 Glens Falls Hospital was opened on June 11. It was paid for entirely by the people of Glens Falls, with not a dollar from the PWA or any other government agency.

The House of St. Giles the Cripple, in Brooklyn, has completed a new three-story annex and other extensive alterations.

. . .

The new addition to the New Rochelle Hospital, almost doubling its patient capacity, will be ready for full occupancy in August.

. . .

A plea for new buildings for the Binghamton State Hospital at an estimated cost of more than \$1,000,000 has been sent to Dr. William J. Tiffany, state commissioner of mental hygiene.

## At the Helm

These hospital officials have been chosen: G. Beekman Hoppin, to be president of the Nassau Hospital Association, re-elected; Frederick Brown, to be president of the

Hospital for Joint Diseases, New York City, re-elected.

John F. McCormack, to be president of the Greater New York Hospital Association.

# Across the Desk

## "America First" in—Smallpox

AMERICA leads all civilized lands again. But it is in smallpox. So the 100 per centers are not mentioning it along with our world records in motorcars, telephones, radios, washing machines, hot-dog stands and what not. It may be nothing to wave the flag for but it is something to get excited about something to write home about. And New York State is very justifiably excited and worked up about it.

The schoolhouses are being turned into clinics for vaccinating the children and their sisters and their cousins and their aunts, not to speak of the fathers and the brothers and the mothers and the others. The jails and the welfare institutions of all sorts too would be full of sore arms, only modern vaccination has made the sore arm out of date. Vaccination is all the rage from the Niagara River to Montauk Point, and if there is a case of smallpox in the state at this time next year it will be an importation. It's a pretty safe bet.

### The Blame Located

In fact, not a single case of smallpox was reported in this state last year or in the populous states of New England, or in New Jersey, Pennsylvania, Delaware and Maryland or in the District of Columbia. Here was a total population of 39,000,000 without one case. Where then was the prevalence of the disease that put our America in the forefront of infected lands? A survey in the *Statistical Bulletin* of the Metropolitan Life Insurance Company reveals the fact that while in the past seven years New Jersey did not have one case, in the same period seven western states with less total population, North and South Dakota, Montana, Idaho, Oregon, Wyoming, and Utah, reported 12,666 cases of this loathsome disease.

It was mainly due to such conditions in our western states we are told that our country as a whole was forced to record once again an increase of its disgracefully high incidence of smallpox. For last year the total number of cases mounted to 15,111 as against 11,087 in 1937 and 7,823 in 1936. Although comparable figures are not yet available for most foreign countries, we are assured that it is safe to say that when they do become known, the United States will again have the unenviable distinction of leading the great Western civilized countries in its tolerance of this disgusting, disfiguring and dangerous disease.

### "For Want of Knowledge the People Perish"

The reason why these western states are so ravaged by smallpox is simple. Their population, it appears, does not believe in vaccination, and three of these states actually prohibit compulsory vaccination by statutory regulation, regardless of prevailing circumstances. A factor responsible for this strange attitude is the mild character of the disease in recent years. Apparently since few die of this form of smallpox, we are told the people of these states feel

that there is no particular cause for fear. Yet the potentialities of such a situation are plainly serious. Here is a fertile field or a powder magazine we might say where sparks in the shape of sporadic cases of malignant smallpox introduced from outside may cause a disastrous fulmination.

The twelve states with the highest smallpox rate per 100,000 population in 1936-1938 are listed in order as follows: Montana, Idaho, North Dakota, South Dakota, Wyoming, Oregon, Iowa, Washington, Kansas, Nebraska, Missouri and Minnesota.

### Smallpox Marching Eastward

were not going to the Fair, it would be to other places, and the danger would be precisely the same. Practically every county medical society in the state has warned its people to be inoculated, and the mass movement to the clinics and consulting rooms is something good to see. It spells defeat for smallpox here.

There is some significance in the fact that the second victim at Colonie was the doctor who attended the first one. The doctor had been vaccinated about 25 years ago, but the absence of any scar makes it doubtful if the inoculation was successful. This should carry some lesson to folks who are trusting to childhood vaccinations. Modern methods of vaccination are very different from those of a few years ago, and even the most timid have nothing to fear. As told in the *Journal of Experimental Medicine*, the new vaccine was developed by Dr. Thomas M. Rivers, Dr. R. D. Baird, and Dr. S. M. Ward, of the Hospital of the Rockefeller Institute for Medical Research. It is made by growing vaccine virus on a special medium consisting of minced chick embryo tissue and Tyrode's solution. Vaccinations against smallpox ordinarily are made with calf lymph vaccine virus.

Vaccination with the new vaccine virus should be followed, within six months or one year, by revaccination with calf lymph virus, the Rockefeller scientists advise in their report to the *Journal of Experimental Medicine*.

"In this way," they state, "vaccinated individuals will not become sick and will not be

subjected to the dangers associated with primary vaccination with calf lymph virus, but will obtain a solid and lasting immunity to smallpox."

No scar forms after the primary vaccination with the new vaccine virus, it is reported, if the inoculation is properly made. Nor is there any fever or discomfort. Following revaccination later with calf lymph virus, such scars as occur are only "small superficial" ones.

### The Doctor's "Nose Knows"

The old-time doctor could often "smell disease," and diagnose illness by the odor of the sickroom. It was not many years ago that a young doctor, riding on a streetcar in a city in this state, detected the smell of smallpox. He induced the conductor to lock the doors and speed to the carbarns, where he discovered the smallpox victim and had all the passengers and crew vaccinated. It is a fetid, sickly odor, never to be forgotten. As well stated in *Diagnosis of Smallpox*, by Ricketts and Byles: "Unique in the catalogue of nasty smells, a breath of it, once inhaled, will dwell forever in the recollection." It is often, indeed, the first danger signal.

The doctor's "nose knows," and no diagnostic device could be more timely right now. The entire profession in this state is on the alert, and smallpox will be given no mercy and no quarter, or, in the lingo of the street, "not a smell."

W S W

### "BEWARE OF COLLECTION AGENCIES"

The officers of a large midwestern collection agency that used an "account purchasing" contract were sentenced to serve three years for use of the mails to defraud. After some court delays these officers are now in custody and on the way to the penitentiary.

For years physicians have been warned by the *J. A. M. A.* to beware of collection agencies, especially those using contracts. An account purchasing contract gives the appearance of being a finance plan by promising to pay the physician from 50 to 80 per cent of the face value of current accounts listed for collection. Actually the agency using such a contract is not obligated to liquidate any accounts but offers the account purchasing device as an inducement to obtain a list of delinquent accounts from the physician.

Once the physician has signed this type of contract, the *J. A. M. A.* continues, he finds that it contains all the provisions of the old collection contract, permitting the agency to have ownership of the accounts, power of attorney to settle the accounts in any manner that the company

chooses, full commissions on accounts when the dissatisfied physician seeks to have them withdrawn, and perhaps a docket fee entitling the agency to fifty cents on each account listed. A special feature of the account purchasing contract permits the agency to retain 25 or 30 per cent of the aggregate amount of the accounts listed for collection. If \$500 worth of accounts has been listed, the agency is entitled, under the 30 per cent contract, to \$150 before the physician has to be paid anything.

With the precedent set by the aforementioned case, collection agencies that pretend to be finance companies and withhold an accounting of money collected from delinquent debtors are now recognized by postal authorities as "schemes to defraud." Agents or officers of the agency in question have organized at least five other collection agencies that use similar contracts. There are also many other independently organized agencies that use such "account purchasing" contracts. The post-office inspectors are waiting complaints.

# Books

Books for review should be sent to the Book Review Department at 1315 Bedford Avenue, Brooklyn N. Y. Acknowledgment of receipt will be made in these columns and deemed sufficient notification. Selection for review will be based on merit and the interest to our readers.

## RECEIVED

**Clinical Studies in Psychopathology** A Contribution to the Aetiology of Neurotic Illness By Henry V. Dicks M.D. Octavo of 248 pages. Baltimore: William Wood & Co. 1939. Cloth \$4.75.

**Fever and Psychoses.** A Study of the Literature and Current Opinion on the Effects of Fever on Certain Psychoses and Epilepsy. By Gladys C. Terry. Octavo of 167 pages. New York, Paul B. Hoeber Inc. 1939. Cloth \$3.

**Textbook of General Surgery.** By Warren H. Cole M.D. and Robert E. Egan, M.D. Second edition. Octavo of 1031 pages, illustrated. New York, D. Appleton Century Co. 1939. Cloth, \$8.

**The Patient as a Person.** A Study of the Social Aspects of Illness. By G. Canby Robinson M.D. Octavo of 423 pages. New York, Commonwealth Fund. 1939. Cloth, \$3.

**The Medical Staff in the Hospital.** By Thomas R. Ponton M.D. Octavo of 288 pages, illustrated. Chicago: Physicians' Record Co. 1939. Cloth \$2.50.

**Endoscopia Urinaria.** By Dr. A. Puigvert Gorro. Quarto of 228 pages, illustrated. Barcelona: Salvat Editores. 1938. Cloth.

**Rural Medicine. Proceedings of the Conference Held at Cooperstown.** New York: October 7 and 8, 1938. (Mary Imogene Bassett Hospital). Octavo of 268 pages. Springfield: Charles C. Thomas. 1939. Cloth \$3.50.

**Moral Problems of Mental Defect.** By J. S. Cammack S.J. Octavo of 200 pages. New York, Benziger Brothers. 1939. Cloth \$2.25.

**Cancer Handbook of the Tumor Clinic of Stanford University School of Medicine.** Edited by Eric Liljencrantz M.D. Quarto of 114 pages, illustrated. Stanford University: Stanford University Press. 1939. Cloth \$3.

**Endocrinology in Modern Practice.** By William Wolf M.D. Second edition. Octavo of 1077 pages, illustrated. Philadelphia: W. B. Saunders Co. 1939. Cloth \$10.

**A Textbook of Clinical Neurology with an Introduction to the History of Neurology.** By Israel S. Wechsler, M.D. Fourth edition. Octavo of 844 pages, illustrated. Philadelphia: W. B. Saunders Co. 1939. Cloth \$7.

**Medical Jurisprudence and Toxicology.** By William D. McNally M.D. Octavo of 386 pages, illustrated. Philadelphia, W. B. Saunders Co. 1939. Cloth \$3.75.

**Menstrual Disorders. Pathology, Diagnosis and Treatment.** By C. Frederic Fluhmann M.D. Octavo of 329 pages, illustrated. Philadelphia, W. B. Saunders Co., 1939. Cloth \$5.

**Health Officers' Manual. General Information Regarding the Administrative and Technical Problems of the Health Officer.** By J. C. Geiger M.D. Duodecimo of 148 pages, illustrated. Philadelphia, W. B. Saunders Co. 1939. Cloth \$1.60.

## REVIEWED

**Hair-dyes and Hair-dyeing Chemistry and Technique.** By H. Stanley Redgrove, F.I.C. and the late Gilbert A. Foan. A new edition completely revised by H. Stanley Redgrove and J. Bari Woodliss. Octavo of 205 pages, illustrated. New York: Chemical Pub. Co. 1939. Cloth, \$5.

For those who are interested in the subject of hair-dyeing, here is a comprehensive treatise written by two English gentlemen, one a member of the Society of Public Analysts, the other the author of a volume on the permanent wave. The book is divided into four parts dealing in turn with the structure and coloring matter of the hair, hair dyes, bleaches, and decolorants, the

practical art of hair-dyeing, and the causes of graying of the hair and its prevention.

The chemistry of dyes and dyeing is treated exhaustively and intelligently. The various vegetable and chemical dyes are described in great detail and especial emphasis is placed on the care necessary when using the para (coal tar) dyes.

The chapters on the preparation of the hair for dyeing and the various procedures required for its proper application should be immensely valuable to those engaged in hairdressing and for that reason, perhaps alone, the high price charged for the book is warranted.

NATHAN T. BEERS

# Officers of County Societies

TOTAL MEMBERSHIP—JULY 15, 1939—16,761

County	President	Secretary	Treasurer
Albany	J S Lyons	Albany	F E Vosburgh
Allegany	P L Morrison	Bolivar	R W Blaisdell
Bronx	G E Milani	Bronx	J A Keller
Broome	C L Pope	Binghamton	E R Dickson
Cattaraugus	T J Holmlund	Franklinville	L E Reimann
Cayuga	L F O'Neill	Auburn	R J Thomas
Chautauqua	DeF W Buckmaster	Jam'town	E Bieber
Chemung	R Breguet	Elmira	R J Lawler
Chenango	D U Gould	Sherburne	J H Stewart
Clinton	E Wessell	Plattsburg	T R Marvin
Columbia	L J Early	Hudson	H C Galster
Cortland	M R French	Cortland	D R Reilly
Delaware	W H F Newman	Stamford	O Q Flint
Dutchess	S L Smith	Poughkeepsie	H P Carpenter
Erie	C E Wertz	Buffalo	L W Beamis
Essex	V R McCasland	Moriah	H J Harris
Franklin	E M Austin	Tupper Lake	D C H Van Dyke
Fulton	J A Shannon	Johnstown	L Tremante
Genesee	G H Knoll	LeRoy	P J Di Natale
Greene	G L Branch	Catskill	W M Rapp
Herkimer	G A Burgin	Little Falls	F C Sabin
Jefferson	J E McAskill	Watertown	C A Prudhon
Kings	P I Nash	Brooklyn	T B Wood
Lewis	E O Boggs	Lowville	H Stein
Livingston	H F Hulbert	Dansville	A J Townsend
Madison	E Freshman	Oneida	L S Preston
Monroe	C V Costello	Rochester	W A MacVay
Montgomery	L H Finch	Amsterdam	W R Pierce
Nassau	E Calvelli	Port Washington	E K Horton
New York	H Fox	N Y City	B W Hamilton
Niagara	H U Cramer	Lockport	F W Barry
Oneida	P P Gregory	Rome	J I Farrell
Onondaga	L E Sutton	Syracuse	D V Needham
Ontario	A W Armstrong	Canandaigua	D A Eiseline
Orange	H F Morrison	Tuxedo Park	E C Waterbury
Orleans	A W Jackson	Albion	J J Layer
Oswego	K W Jarvis	Oswego	J J Brennan
Otsego	J H Powers	Cooperstown	F J Atwell
Putnam	R M Hall	Cold Spring	J T Jenkin
Queens	J Wrana	Jamaica	F R Mazzola
Rensselaer	W T Shields, Jr	Troy	L S Weinstein
Richmond	F M Schwerd	Princes Bay	J K Lucey
Rockland	J Pomerantz	Spring Valley	W J Ryan
St Lawrence	J E Meeker	Ogdensburg	R J Reynolds
Saratoga	R B Post	Ballston Spa	M J Magovern
Schenectady	J R Schermerhorn	Sch'nt'dy	J H Naumoff
Schoharie	C L Olendorf	Cobleskill	H L Odell
Schuyler	C W Schmidt	Burdett	O A Allen
Seneca	C B Bacon	Waterloo	D B Walker
Steuben	D R Haggerty	Arkport	R J Shafer
Suffolk	W W Gardner	Patchogue	E P Kolb
Sullivan	H Golembe	Liberty	D S Payne
Tioga	C S Johnson	Spencer	I N Peterson
Tompkins	H J Wilson	Ithaca	W Wilson
Ulster	H L Rakov	Kingston	C L Gannon
Warren	D M Sawyer	Glens Falls	J S Parker
Washington	W B Nuzzo	Hartford	D M Vickers
Wayne	E S Platt	Red Creek	J L Davis
Westchester	R T B Todd	Tarrytown	R B Archibald
Wyoming	G G Davis	Arcade	O T Ghent
Yates	J P MacDowell	Dundee	G C Hatch

# NEW YORK STATE JOURNAL *of* MEDICINE

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## *Editorial*

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### A Different Kind of Survey

Physicians do not give credence to the A M A 's survey of medical needs merely because it is the A M A 's. They consider it more reliable than other recently heralded surveys because its methods are more nearly in accord with the accepted principles of scientific investigation.

The definition of illness accepted by the Committee on Costs of Medical Care, the California Medical Association Survey, and the National Health Survey is arbitrary and artificial. It does not conform to any medical conception of sickness. Rather does it seek to embrace as many persons as possible in order to strengthen the arguments for compulsory insurance. The A M A. Survey "was not made to fit a prescription already written" or boost a remedy on which it had already decided as profitable to itself.

The A M A Survey "is more nearly representative of both urban and rural populations than any previous study." It covers a larger percentage of the population and of the geographical area of the country.

The sources of information used by the A M A are also broader and more reliable than in any of the other studies cited. The National Health Survey, for example, employed untrained WPA workers who based their reports on the replies to a few set questions of no great significance. It completely ignored the medical profession as a source of information. The A M A obtained its data from physicians, dentists, pharmacists, nurses, hospitals, health departments, welfare and relief agencies, schools, universities, industrial and fraternal benefit associations, and group hospitalization services.

It is noteworthy that there were no significant differences among these various groups as to the actual conditions in a given community. Where physicians reported no unmet medical needs, their findings were corroborated in the independent reports of the other



groups questioned Where deficiencies in medical service were cited by private or public welfare agencies, they were confirmed by organized medicine This unanimity contrasts sharply with the disputes which have arisen over the factual accuracy of the National Health Survey Even papers like the *New York Times*, which have been at least receptive to compulsory health insurance, openly doubt that the convenient fraction "a third of a nation" can be invoked with respect to unmet medical needs

In the light of the clamor for state control of medical care raised by the Interdepartmental Committee and other political groups, it is interesting to note that "there was almost complete unanimity and universality of opinion that medical services provided by governmental agencies were the ones most apt to be insufficient" However, "fully 90 per cent of all the sources consulted reported that they knew of no significant number of persons needing and seeking medical care who were unable to obtain it" Where unmet needs existed, they were often "due to indifference and lack of education," although economic reasons were frequently given

The differences between the survey reports of the A M A and the Interdepartmental Committee are too striking to be dismissed lightly Whatever personal antagonisms exist in the Administration to the A M A, the latter's experience and competence in matters of this sort are too well established to be ignored Unless the A M A's survey can be discredited or the National Health Survey confirmed by an impartial, authoritative source, it would be folly for the country to embark on a costly, large-scale program based on a study whose accuracy is in doubt

### Education Versus Compulsion

In this issue there appears the text of an address, broadcast from the World's Fair over WNYC on May 29, by Dr Charles F Bolduan of the New York City Department of Health

While its references are local, its implications are of general import and application Because of its wider interest, it is published in our JOURNAL All should read this address

Dr Bolduan is one of the senior members of the New York Department of Health He has had part in, and has witnessed some of the most successful efforts of a health department to conquer preventable diseases and to improve healthy housing and working conditions for the people in New York City His short address is significant in that it not only demonstrates what an efficient health department can do, but it stresses particularly what a health department shall not do "Thus far and no farther" is what this address implies

In a time when short sighted protagonists for "compulsion" in many forms of contemporary life are loudly proclaiming the "urgent" necessity for the use of "compulsory measures" in matters related to health problems, it is like a refreshing breeze over heat-dried land to listen to an authoritative statement from a career official who holds the education of the public in health matters as more important and effective than the enactment of laws of compulsion.

Certainly the address points the lesson that compulsory laws would have failed to bring the fine results which consistent and persistent public education brought. It cannot too often be stressed that our people are individually a "thinking" people. Show them the reasons behind your efforts, and they respond splendidly. Try to use compulsions without educational efforts, and their reaction is instinctively the development of evasion and opposition. There is a lesson in this that the proponents of compulsory health insurance should heed.

### Privilege Not Right

In October, 1936, the State Board of Regents adopted a ruling requiring all foreign medical men to take the regular State Board Examination in order to obtain a license. A few refugee physicians, believing it their right to have their foreign licenses endorsed without examination, have appealed from this ruling to the Courts. In every case the Courts have upheld the Regents' stand. The latest decision comes from the New York State Court of Appeals, which has unanimously affirmed the state's right to demand that all physicians seeking to practice here pass the regular qualifying examination.

This requirement cannot be considered unjust. The first duty of the Regents is to the professional standards considered essential to the preservation of the public health. In most of the countries from which the immigrating physicians come, foreigners are not permitted to practice under any circumstances. New York State is willing to admit foreign medical men to practice on condition that they pass the examination required of all native born physicians.

New York State is rightly proud of its high standards of medical practice. It was possible to endorse foreign licenses and still maintain those standards as long as the applications for such endorsement were few. Today the number of foreign candidates is too great to permit painstaking investigation of each. To endorse the licenses of some and require examination of others is palpably unfair and opens the door to graft and political favoritism. The safe and just way is to have one method of licensure for all.

The State Board Examination is the criterion of fitness for our own medical men. It is right that foreign graduates be required to measure up to it also.

### Human Equine Encephalomyelitis

Public health authorities are confronted with a new problem in epidemiology in the form of severe equine encephalomyelitis in man. The viruses of this disease had been isolated several years ago but it was not believed that they could be communicated to humans. The first inkling that this was possible came from Minnesota where 6 cases were found among farmers who were infected with the western strain of the virus.<sup>1</sup> In the summer of 1938 an epidemic of 40 human cases appeared in New England.<sup>2</sup> Now Fothergill, Holden, and Wyckoff<sup>3</sup> report a fatal case in a laboratory worker.

In man, equine encephalomyelitis carries a high mortality and occurs most frequently in children under 5 years of age. The focal lesions of the disease are distributed widely through the brain and spinal cord and are characterized by vascular engorgement, degeneration of the nerve cells, and by perivascular parenchymatous infiltration of neutrophils, mononuclears, and lymphocytes. Fothergill's case started with headache and high fever, which were followed by convulsions, coma, and death. The spinal fluid when injected intracerebrally into young mice and guinea pigs produced paralysis and death.

The problems of spread to man and its prevention are the principal ones for solution. It seems that the horse is not the reservoir of the infection but, like man, is infected from some other source. Various bird species examined in the New England States harbor the virus and the probability is that here is the natural habitat of the virus, which can spread to man when the disease among them rises above the epidemic level.

### Reducing Premature Infant Mortality

The premature infant has much less chance of survival than one born at full term. Besides the greater possibility of anomalies which are incompatible with life and of marked deficiencies in development, these babies are far more susceptible to respiratory infections. That much can be accomplished in the reduction of the mortality rate in premature infants by employing simple hygienic and

<sup>1</sup> Brit. M. J. 877 April 29 (1939)

<sup>2</sup> Fothergill, L. D., Dingle, J. H., Farber, Sidney, and Connerly, N. L. New England J. Med. 219 411 (1938)

<sup>3</sup> Fothergill, L. D., Holden, M., and Wyckoff, R. W. G. J. A. M. A. 113 206 (July 15) 1939

dietary measures has been demonstrated by Stroesser<sup>1</sup> in a study covering a period of eight years at the Minneapolis General Hospital

During the first two days of the infant's life, a period he terms "period of resuscitation," strict attention must be paid to the maintenance of normal body temperature and unobstructed respiration. The infant is disturbed as little as possible, and all methods of resuscitation must be at hand to enhance normal breathing in the newborn. Under this régime, the death rate dropped from 20 per cent in the sixth year of observation to 14.5 per cent in the eighth year. In the following week, the period of adaptation to feeding," bronchopneumonia, otitis media, and erysipelas constitute the greatest hazard to life. Rigid examination and isolation of the personnel, and the use of a feeding schedule which controlled regurgitation and diarrhea resulted in the reduction of the 27 per cent death rate after the tenth day of life during the second year of Stroesser's study to 3.5 per cent the following year.

When the premature infant has passed the tenth day and entered the "period of growth and development," its chance for surviving is good provided no developmental deficiency ensues. Proper feeding and adequate child hygiene under supervision afford the best assurance of continuing health and growth. While not perfection, Stroesser's work shows how much can be accomplished in saving the lives of premature infants by the application of present methods properly performed.

<sup>1</sup> Stroesser, A. V. *Journal Lancet* 59: 236 (May) 1939.

## The 1939 MEDICAL DIRECTORY of New York, New Jersey, and Connecticut

### FURTHER NOTICE TO PHYSICIANS IN NEW YORK STATE

Compilation of the MEDICAL DIRECTORY is still in progress for publication in December, 1939. The deadline for changes in hospital affiliations and Medical Society memberships was, as previously announced, August 1, but alterations can still be made in

Addresses  
Office Hours  
Telephone Numbers

The deadline for these is September 1. No changes at all can be accepted after that date.

PUBLICATION COMMITTEE

## Current Comment

"The total number of days of sick benefits in Germany has increased two and one-third times since 1913, its cost of administration has almost trebled and it has become necessary to add a state subsidy as well as to decrease the time and amount of benefits in a ratio from 40 to 70 per cent."—From the *Illinois Medical Journal*, of recent date

. . .

A decalogue of cancer, suggested by the *Weekly Roster and Medical Digest* recently

- "1 Thou shalt keep abreast of knowledge
- 2 Thou shalt not neglect regularly-timed health examinations
- 3 Thou shalt not allow chronic irritations to continue
- 4 Thou shalt not neglect sores, discharges, lumps, warts, moles, etc
- 5 Thou shalt not give way to fear—BUT
- 6 Thou shalt have a diagnosis—and above all
- 7 Thou shalt not listen to 'old wives' tales or to well-meaning but misinformed persons
- 8 Thou shalt not consult quacks
- 9 Thou shalt encourage and help research
- 10 Thou shalt not DELAY "

. . .

"A lay reader of a New York newspaper is stirred by reports of coming health insurance bills in Washington, to 'write to the editor' and say 'I believe in medical and dental care for the masses, but I do not believe that those who have observed the health rules and have reached the higher income brackets should be taxed to pay hospital and doctor bills of the alcoholic, the syphilitic, and those who give no thought to their health until they are ready for hospitalization. Since efficiency is so clearly related to health, the more efficient will have to pay the higher tax while deriving

none of the benefits' "—The letter "to the editor" from this indignant layman in New York attracted the attention of the *Los Angeles Bulletin*, whence we have quoted it

. . .

"Persons with less than medical education can hardly be expected to be adequate for the medical services required to secure health for the school child"—The gist of a critique by Dr Haven Emerson on the report of the Regents' Inquiry Concerning the School Health Program. The critique in its entirety is to be found in the June issue of the *Westchester Medical Bulletin*

. . .

" if the supposed amount of inadequate medical care does not exist in America—and physicians, who should know, do not believe it to exist as so darkly painted—then there is no reason for revolutionary changes in the method of medical practice, through institution of a governmental health system, in which political supervisors would rule over scientifically trained physicians"—Editorial comment in the May issue of *California and Western Medicine*

. . .

"Instead of the traditional pattern, the act (Wagner Health Bill) recommends a pattern of government dominance over health care tried in its implications only in those countries in which the American form of democracy is unknown. It contains no provisions looking toward an augmentation and facilitation of the functions of partnership between private and public agencies. It permits the use of private agencies, if at all, only by implication in a few isolated areas of health care"—The opinion of Rev Alphonse M Schwitalla, president of St. Louis University School of Medicine, as he stated it before the Senate committee a short time ago

# ANXIETY IN RELATIONSHIP TO HYPERTHYROIDISM

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THE clinical picture of an anxiety state is in many respects similar to mild hyperthyroidism. Those of us in a well integrated general hospital where surgical, medical, endocrinologic, and psychiatric consultation is available, frequently find a variance of conclusions following the study of a patient presenting a typical anxiety reaction. Therefore, the question "When is a goitre really hyperthyroidism?" occurs sufficiently often to create confusion. We have been impressed with the large number of patients having had thyroidectomies who have shown no improvement or have become much worse following their surgical experience. After traveling from clinic to clinic, they lose faith in medicine and finally end up in the hands of some charlatan. Strecker and Ebaugh,<sup>1</sup> in their textbook, *Clinical Psychiatry*, state that "since the anxiety state may closely simulate hyperthyroidism, the following suggestions for differentiation are included. In anxiety states the patient has restricted drive or energy, is usually fatigued, has coarse tremors, cold, clammy skin, slight elevation of the B.M.R., pulse rate falls during sleep, and appetite is decreased. With hyperthyroidism, patients fatigue easily, have much drive or energy, fine, rapid tremors, warm, moist skin, considerably elevated B.M.R., pulse rate remains the same during sleep, and appetite is increased with weight loss." The importance of the problem is readily seen, for Owen<sup>2</sup> in 1937 states that in a large general hospital with 18,744 admissions and readmissions, 303 patients had their thyroids removed—1.27 per cent of all patients admitted to the public wards and, interestingly, 2.12 per cent of those on private wards. He furthermore states that the

diagnosis in these puzzling cases rests on a most careful and complete history of the patient along with a careful analysis of symptoms. Billings<sup>3</sup> stated that 20 per cent of a large number of so-called "functional cases" referred to the psychiatrist of a large general hospital presented a train of symptoms which was in many instances thought to be due to goitre, and treated as such. He presents a table of differentiations between the two conditions.

The symptoms of hyperthyroidism characteristically presenting themselves are numerous. The onset is often rather sudden, following some profound emotional shock. The thyroid gland is usually enlarged. Eye signs are frequently present. These consist of bilateral exophthalmos, lagophthalmos, a widening of the palpebral fissures, a failure of sustained convergence of the eyes, and, occasionally, unequal pupils. Nervousness, both objective and subjective, is one of the most constant symptoms. The patients describe an inward trembling and an unsteadiness in attempting fine movements. They frequently feel apprehensive, cry readily, and show sudden bursts of emotion. They are often depressed but may show manic or delirium like reactions. A fine tremor of from eight to ten vertical vibrations per minute of the outstretched fingers is perhaps the most characteristic nervous sign. Easy muscular fatigue is one of the first symptoms noted. The tachycardia of hyperthyroidism is characterized by its constancy, with only slight variations in rate, night or day. Cardiac irregularities such as sinus arrhythmia, extrasystoles, auricular fibrillation, and auricular flutter frequently occur. Generally, in hyperthyroidism the systolic blood

pressure is not high if the diastolic pressure is low, and vice versa, but a high pulse pressure is the rule. Dyspnea, flushing of the skin, excessive perspiration, particularly of the palms and soles, slight elevation in temperature, and intolerance to heat are common. Although appetite is usually increased, there is a loss of weight. The basal metabolic rate is almost invariably elevated.

The above signs and symptoms of hyperthyroidism were condensed from Werner.<sup>4</sup> In reviewing this symptomatology, there is not a single finding, or even the entire combination, that we have not observed in a typical anxiety neurosis.

An anxiety neurosis is the most common of all the psychoneuroses, and is caused by guilt, fear, or insecurity feelings in a susceptible personality type. It occurs in individuals who are tense and apprehensive, and is characterized by attacks of panic, usually sudden but not necessarily so. These attacks may involve one or all of the bodily systems. A typical attack starts during the night, usually following a disturbing dream in which scenes of terror are revived. The patient's heart pounds and he has the sensation as if it were skipping or turning over. He feels flushed and hot and then again cold and clammy. There may be dyspnea or more often air hunger. Epigastric uneasiness, nausea, belching, and mucous diarrhea are some of the gastrointestinal disturbances found. The patient perspires profusely, particularly on the palms and soles. There is marked coarse tremor, paresthesias of all types, head disturbances such as pressure feelings, cracking sensations in the back of the neck, and dizziness, which on analysis is always a type of insecurity feeling. Eyesight is blurred, tinnitus may be present, and the patient becomes weak and exhausted, although during an exacerbation activity is great.

Mentally there is a feeling of confusion, panic, or impending doom. Fear grips the individual with the development of ideas of approaching insanity or hopeless physical disability. Such a typical attack is very common, but there are all

gradations of reaction and many or all of these symptoms in mild form may be present over long periods of time. Such patients frequently show a high B M R, which may even respond to iodine therapy. There may be a slight increase of temperature, tachycardia, and marked weight loss. Appetite varies but is generally poor. The patients have many dreams, the content of which gives a clue to the psychogenic material.

It becomes evident from the above descriptions of hyperthyroidism and the anxiety state that they may closely parallel each other, particularly in those cases where the hyperthyroidism is mild and where the anxiety is not strikingly episodic but rather is present over long periods of time.

Since 1929, when the psychiatric outpatient clinic at the Buffalo General Hospital was started, we have been interested in the large group of cases in which thyroidectomy has been done without lasting improvement. Ten of these cases are presented. They all more or less adhere to similar patterns, therefore, but 2 of the cases will be given in some detail.

### Case Reports

*Case 1*—E. A., a girl of 19 then unmarried, was admitted to the medical clinic in July, 1931. She complained of being run down for the past two years. Three weeks before she had contracted a cold and had been feeling very weak ever since. Her appetite had been poor, bowels were irregular, and she had a dry, hacking cough. She had many dizzy spells and complained of numbness and tingling in her extremities. No physical abnormality was found. On reassurance she improved and was not seen again until 1936, when she returned with complaints of attacks of palpitation, dyspnea, and fatigue, in addition to her previous ones. The eyeballs were prominent, the skin was moist and warm, and the blood pressure was 95/55. Her appetite was fair but she had lost 10 pounds in weight. B M R was plus 25.6 per cent. Patient was placed on Lugol's solution, and her B M R fell to plus 2.5 per cent. Her symptoms, however, did not ameliorate, and a subtotal thyroidectomy was done in October, 1936. The pathologic sections showed colloid goitre with no evidence of hyperthyroidism. I am quoting verbatim the

notes written in the thyroid clinic, as being significant

*February 1 1937* Patient complains of having palpitation, shortness of breath, and being very tired. Pulse was regular and of good quality B M R. minus 8 per cent. Has gained 16 pounds since being discharged from hospital. I would suggest thyroid tissue grain 1.

*February 8, 1937* Pulse 108 temperature 99.5. Thyroid tissue apparently has no beneficial effect. She has become more nervous and has lost 1½ pounds. I believe most of her complaints are due to economic stress. It is difficult to reconcile her complaints, which are those of hyperthyroidism, with the physical findings of myxedema. Thyroid tissue to be continued.

*February 22 1937* I do not believe the thyroid has anything to do with this girl's illness. Her symptoms remain the same. She ought to discontinue coming to this clinic as there is nothing further we can do. I believe all her troubles are psychogenic in origin. Refer to psychiatry.

Patient was seen in the psychiatric clinic on March 3, 1937. She complained of palpitation, shortness of breath and choking sensations in her throat on any slight exertion. There was also blurring of vision and feelings of faintness and insecurity.

The girl is the oldest child of an Italian family, of which the mother and father are still living. All the children are alive and well, except one who died of pulmonary tuberculosis when the patient was 15 years old. At this time she became very fearful about her chest until an x-ray was taken that proved to be negative. She was an average student and graduated from grammar school. Patient fell in love and married after a short courtship five years ago and has since felt that her husband is a very fine man but almost too good for her. They have one child, a healthy boy aged 3. She has had a very distressing time with her sex life. Sex relations before her son's birth were extremely painful and since then have been very repugnant. She has much disgust and often vomits the morning after sex experience. She is very much disturbed because her sleep is poor and is often interrupted by terrifying dreams. One dream frequently recurs in

which she is endlessly pulling a tapeworm from her mouth and throat. She awakens from this dream in a cold sweat with marked palpitation, dyspnea, and a feeling that she is going to die.

In analyzing the problem, one found that her parents have never been happy together. At an early age, patient appreciated that some sort of sex experience went on between them. She disliked her father intensely after this and continues to do so. She knew nothing other than this about sex matters until she was 18. At this time she and some other girls were on a streetcar and a man of about 50 years of age exposed himself. The patient became very much upset and after leaving the streetcar, vomited. During the next year she had two similar experiences. Each time she became very much disturbed and had emesis. She never told anyone about this until attending the psychiatric clinic. Frequently during sex relations with her husband she thinks of these episodes. She has abhorred seeing her husband unclothed and always turns away if she can. She dislikes watching her child in his bath and covers his genitals with a wash cloth or soapsuds.

The illness was explained to her on the basis of anxiety due to fear and disgust for anything related to sex. The origin of these feelings was traced back to the time when she became aware of sex activity between her parents. This created considerable resentment toward her father but the resentment was one of frustration of her own desires. The tapeworm in her dream was symbolic of the phallus which was a never-ending ordeal and always a source of tremendous distress and disgust. She accepted this explanation very well and although progress is slow and symptoms are apt to recur, she has made a very satisfactory improvement.

*Case 2*—F B a single female aged 20 was admitted to the hospital on January 1, 1939. She stated that she felt well until five weeks before, when she began to have dizzy spells (insecurity). These were associated with nausea and at times emesis. A week later she became



more irritable, nervous, had blurring of vision, palpitation, night sweats, intolerance to heat, and precordial pain, which forced her to take to bed. Sleep was poor and was disturbed by frightening dreams. Temperature was 99.4, pulse rate varied from 95 to 120. The thyroid was not enlarged except for the isthmus portion. There was slight exophthalmos, the palpebral fissures were wide, and convergence was faulty. The palms were moist but warm. Blood pressure was 120/80. On January 23, 1936, the B.M.R. was plus 27.5 per cent. On Lugol's solution this came down to minus 7 per cent. She was discharged improved, but four months later returned to the hospital very much worse. At this time a subtotal thyroidectomy was performed. The pathologic study failed to reveal evidence of Graves's disease. She developed a hysterical aphonia two days postoperatively but otherwise showed marked improvement. Six months later she was referred to the psychiatric clinic because her original symptoms had again recurred.

It was found that her difficulties started two years previously, following the death of her father. A week later she saw her brother, who closely resembled her father physically, killed in an automobile accident. She was her father's and brother's favorite but does not have a pleasant relationship with her mother or sisters. She felt quite well following the thyroidectomy until two weeks ago, which was the anniversary of her father's death. Last week was the anniversary of her brother's death, and her symptoms became more distressing.

Patient is a very rigid, religious person who has never had masculine attention, while her sisters were very popular. They were good students and both graduated from high school but she said that she had to leave school when in the seventh grade because her mother needed her at home. It took a considerable period of time to gain sufficient rapport with the patient in order to obtain the psychogenic material. This was related following a dream about her sister and her fiancé, in which the latter made advances to patient. On awakening she had a marked anxiety reaction. She stated that she had many fantasies about having a boy friend, which could never be-

come reality because of masturbatory activity practiced since her menarche. The dream was interpreted to her on the basis of her own sex frustration caused by guilt and fear feelings. It was explained that these, in addition to her insecurity, resulted in the anxiety reactions.

The interpretation of the dream had a remarkable effect on her ability to accept the emotional nature of her illness. She understood that the aloneness and insecurity were factors in her recent disturbance at the time of the death anniversaries. The patient has made a striking recovery and is now doing housework.

*Case 3*—M. S., a female of 31, first seen on April 19, 1935. At the age of 13, thyroid swelling was noted. For the past few years she has been very nervous and irritable and has complained of palpitation and dyspnea on exertion. She was treated for ten months in the medical clinic without improvement. She was garrulous, apprehensive, and difficult to handle. Palpitation was frequent, and whenever she was examined, rapid pulse, perspiration of palms and soles, and tremor of the outstretched fingers were found. Her appetite was good but there was a weight loss of 17 pounds. The B.M.R. was plus 21.3 per cent and the blood pressure was 118/80. A subtotal thyroidectomy was performed, but the pathologic report of the tissue showed no evidence of Graves's disease.

A year later, patient was referred to the psychiatric clinic. She was loquacious and appeared disheveled and tense. She stated that for three years, but particularly since her husband's death in February, 1935, she had attacks of palpitation, especially at night. These were accompanied by air hunger, epigastric uneasiness, and choking feelings, "which I thought were due to the lump here, but which still come on in spite of my operation." She perspired profusely and was certain that she was going to die. The B.M.R. was minus 2.0 per cent. The patient had marked guilt feelings because she had had some illicit sex experiences just before her husband's death and subsequently became certain that his death was her punishment. She improved considerably on psychotherapy.

Help was given her in home management and in the care of the children. Her anxiety with its persistent palpitation disappeared. She continues, however, to be loquacious and somewhat apprehensive.

*Case 4*—T. M., a 40-year-old single female who has never felt particularly well and has had severe pressure sensations in the occipital region, since January 1937 which she called headache. She had peculiar feelings in her abdomen shooting pains in the cardiac region, palpitation, blurring of vision, insomnia and occasionally other anxiety symptoms. She was apprehensive, agitated, depressed, and had lost 12 pounds in three months. Blood pressure was 160/90. Subtotal thyroidectomy was done on March 18, 1937. The pathologic specimen did not show any evidence of Graves's disease.

Three months later, the patient was seen by a psychiatrist because her symptoms had progressively become much worse. The background of her anxiety reaction was (1) a great financial insecurity, (2) a frustrated marital situation in which her mother played the prominent role and (3) fear of a cerebral accident following the diagnosis last year of cerebral arteriosclerosis. Her father had died of apoplexy at her present age.

Improvement is slow. All symptoms have become milder except the frequent attacks of severe head pressure.

*Case 5*—M. L., a 37-year-old female had a long history of many complaints. Thirteen years ago she had had a thyroidectomy. She was nervous, depressed, wept a good deal, had palpitation, increased intolerance to heat, clutching feelings in her throat, blurring of vision, epigastric uneasiness with nausea, marked perspiration and pressure feelings in her head. Eyes were slightly prominent, outstretched fingers were tremulous, the skin was moist and blood pressure was 108/70. Following the operation she felt somewhat better for a time, but attacks of anxiety still persisted, and when seen in the psychiatric clinic she felt worse than she ever had.

Patient is sensitive but not rigid. She has always been extremely religious. Six years ago she married a man eighteen years older than herself. Marriage has been happy, except sexually. There was much guilt and fear feeling due to

masturbatory activity for years prior to and since her marriage. In the confessional before her marriage she was told that her behavior was both sinful and physically harmful. A strong sex drive intensified her reaction. On psychotherapy she improved remarkably in all spheres.

*Case 6*—S. B., a widow aged 47 had always been an inadequate person depending first on her family and later on her husband and daughter. After her husband's death nine years ago she had a short reactive depression. She remained well until her daughter's sudden death three years ago. At this time she became slightly depressed and had mild anxiety symptoms. Two months later following a cholecystectomy her symptoms increased in severity. Two years ago because of these symptoms and a suggestive exophthalmos marked weight loss in spite of a fair appetite, a fine tremor of the fingers, a warm moist skin, and a B.M.R. of plus 40 per cent which fell to plus 2 per cent on Lugol's solution a subtotal thyroidectomy was done. The pathologic examination of the tissue showed no evidence of Graves's disease. Following the operation, even though the B.M.R. ranged from minus 9.2 per cent to minus 5 per cent, each new emotional situation brings the same type of anxiety state, with depression and occasional acute anxiety attacks. Psychotherapy has tended to improve the situation.

*Case 7*—B. L., a 61-year-old widow had a subtotal thyroidectomy because of complaints of insomnia, fatigue, attacks of dizziness (inequity), blurring of vision, clutching sensations in her throat, excessive perspiration, and nausea and vomiting of five years duration. She had a warm moist skin, fine tremor of the fingers, and a blood pressure of 160/90. The pathologic report was negative for Graves's disease. The last two symptoms were the only ones benefited by the surgery. The emotional conflict in this patient has been an overwhelming financial struggle caused by incapacitating arthritis. She is on relief and before psychotherapy she found her financial situation constantly insecure and intolerable. With the cooperation of the relief agency and an interpretation of her problem she has made an adequate adjustment.

*Case 8*—A. H., a 37-year-old woman had a thyroidectomy on March 1, 1935 because of enlargement of her neck and extreme nervousness for one year. There was definite weight loss with an increased appetite, tremor, excessive perspiration, nausea and intermittent attacks of precordial pain for three months. Blood pres-

sure was 120/74. Patient had had three perineal repair operations in 1928, 1933, and 1935. After the last operation she was told that if she had another child it might mean the loss of her life. The pathologic specimen failed to reveal any evidence of Graves's disease. She improved somewhat following surgery, but after her return home the symptoms reappeared. She is extremely religious and has developed a great deal of both guilt and fear feeling about her sex life. First, she is worried that she might become pregnant and second, that the contraceptive measures used to prevent this are sinful. Under psychotherapy she is making an adequate adjustment.

*Case 9*—E I, a 33-year-old female, had a subtotal thyroidectomy on October 1, 1935. She had felt extremely nervous for a year, had lost 15 pounds in weight, had palpitation, tremor, dyspnea, and attacks of diarrhea. There was a slight exophthalmos, she winked infrequently, and had some lid lag. Her B M R was plus 30 per cent. The tissue did not show any recognizable changes of Graves's disease. Immediately after the operation she went into an excited state for a few weeks and this was followed by marked apprehension and anxiety of two years' duration.

She is an extremely rigid and sensitive personality. The origin of the anxiety state was marked guilt feeling following an abortion in the early days of her marriage, and since this time there has been no pregnancy. Under psychotherapy she improved slightly but remained a very difficult problem for at least a year, after which she made a complete recovery.

*Case 10*—H N, a 28-year-old female. The history is very unreliable but it would seem that the patient had definite anxiety symptoms for a few years previous to her first subtotal thyroidectomy done six years ago. She stated that she was no better following the operation. In November, 1938, she had a second thyroidectomy because of increase in severity of her anxiety symptoms. She had shown moderate exophthalmos, loss of weight and appetite, and blood pressure was 108/60. The pathologic report was negative for Graves's disease. Since her discharge from the hospital she has placed foreign objects in the wound.

She became much worse following this operation and was seen in the psychiatric clinic in January, 1939. Her social record revealed that she had had an illegitimate child, had spent some time in a reform school, and had married eight years ago when she was seven months pregnant, of which fact her husband was unaware. He left her immediately after the child was born.

Patient has not returned to clinic and it is reported that she was sent to a psychopathic ward.

## Comment

These ten cases in which thyroidectomy was performed without improvement show the pitfalls of dependence on signs and symptoms alone. No patient reported permanent improvement after surgery and 5 patients were made worse. The immediate amelioration of symptoms in some patients following surgery was no doubt due to the psychic effect of the operation and the modification of environmental factors during the patient's hospitalization. All the patients in this series were females.

An attempt was made, as has been previously done by Billings,<sup>2</sup> to determine some diagnostic criteria by an analysis of the presenting signs and symptoms. Table 1 contains those manifestations that have been considered diagnostic of hyperthyroidism. The notations on it represent the presence of these factors in each of the ten anxiety reactions described.

It is readily observed that no one sign, symptom, or group of factors could be used to differentiate between hyperthyroidism and anxiety. Neither the basal metabolic rate nor the response to Lugol's are sufficiently diagnostic. We had hoped that the type of B M R curve might be helpful in the differential diagnosis because some of the patients who are emotionally disturbed may show an irregular type of tracing.\* We were able to obtain the B M R curves in 5 of our cases and found that only 1 had an irregular pneumograph. Three cases showed clinical improvement with Lugol's yet in each of these instances the pathologic report coincides with the psychiatric

\* It is recommended that when basal metabolic tests are used to differentiate anxiety states from hyperthyroidism, a definite technic should be followed. The patient ought to be at rest in cheerful surroundings and mild sedation with the barbiturates is recommended as this will not materially modify the true basal metabolic level. A series of metabolism observations should be made under these conditions before iodine is given to establish a level which is as strictly 'basal' as possible. One test especially if it is done under unsatisfactory conditions is not only worthless but actually misleading. The pneumogram, which is obtained when the metabolism is taken may also be of value in the differential diagnosis because it demonstrates graphically the short periods of hyperventilation that are so frequently observed in emotional reactions.

TABLE 1

Case	1	2	3	4	5	6	7	8	9	10
Enlarged Thyroid	+	+	+		+	+		+	+	+
B.M.R.	+25	+27	+21			+40			+30	+
Eye Signs	+	+			+					+
High Pulse Pressure				+			++			
Warm and Moist Skin	+	+				+	+			
Fine Tremor						+	+			
Response to Lugols	+	+				+				
Temperature										
Increase in Appetite with Weight Loss	+		+			+		+		
Intolerance to Heat		+				+				
Pathology	0	0	0	0	0	0	0	0	0	0

interpretation and not the clinical impression. The role that thyroid secretion might play in a definite anxiety reaction cannot be determined from these cases. It is evident, however, that anxiety still persisted when the basal metabolic rate fell to normal or subnormal values.

History is the one vital feature that leads to a correct interpretation of the illness. This, of course, must not only include the presenting complaints but also the background of the individual and the conflicts that have arisen during the patient's life. The very manner in which the symptoms are described by the patient may in itself indicate the emotional nature of the reaction. When one obtains a history in this type of illness leading questions referable to disturbance of organs innervated by the autonomic nervous system are not only permissible, but are of great value. The patient is generally apprehensive, and these questions immediately put her at ease because she feels that this physician understands her. As the physician enumerates her many bizarre feelings, one observes an increasing release of tension, until finally it is not uncommon at the end of even one interview to notice the patient breathing a sigh of relief because of renewed hope and courage. The diagnosis of anxiety is more firmly established by analyzing the personality type and demonstrating the emotional problems which seem adequate to cause an anxiety state in the patient under consideration. In other words, one must assume a common sense point of view in the evaluation of all the facts available.

In summary, one may state that in an endemic goitre belt such as this, a patient presenting all or some of the heretofore

enumerated signs, even in the presence of an enlarged thyroid, is worthy of psychiatric study. Such a study in itself may be sufficient to improve the patient, whereas thyroidectomy alone will not effect a cure.

### Summary

1 Ten cases of anxiety reactions that have been subjected to thyroidectomy are presented.

2 No sign or symptom, or constellation of these, will distinguish either condition.

3 Neither a high basal metabolic rate nor a clinical response to iodine is specific to rule out a diagnosis of an anxiety state. The type of B M R curve has no diagnostic value.

4 An adequate evaluation of the complaints, the psychogenic material and the physical findings are necessary for diagnosis.

5 Psychotherapy has resulted in improvement in all cases where thyroidectomy alone had previously failed.

### References

- 1 Strecker, Edward A. and Ebaugh, Franklin G. *Clinical Psychiatry*. P. Blakiston's Son & Co. Philadelphia 1935.
- 2 Owen, Trevor. *Canad. M. A. J.* 500: 38 (1937).
- 3 Billings, Edward G. *Colorado Med. J.* 14: 34 (1937).
- 4 Werner, August A. *Endocrinology—Clinical Application and Treatment*, Lea & Febiger Philadelphia 1937.

### Discussion

Dr George E. Beilby, *Albany New York*—Dr Beck has again today emphasized the importance of a careful differential diagnosis of hyperthyroidism. The group that he has called anxiety neuroses represents a large number of the total of all patients seen who come complaining of symptoms that simulate hyperthyroidism. The 10 surgical failures reported

by Dr Beck today are eloquent testimony of the extreme caution that must be exercised in separating those patients who will be benefited by operation from those who will not

Because my work is limited to the surgical correction of thyroid problems, it is imperative for me to eliminate those patients who may present suggestive symptoms but in whom there is no goitre. To do this, experience has taught us that the history and physical examination are the most reliable diagnostic guides

Although Dr Beck has indicated certain similarities between hyperthyroidism and the large group of neuroses, there are, fortunately, certain warnings that can be obtained from the history. The presence of cold, moist hands and feet is a most consistent suggestive finding and to us means that the disease is probably not due to goitre. The history of a weight gain, or maintained normal weight in the presence of a poor appetite is extremely suggestive that the condition is not the result of thyroid disease. Limitation of the symptoms to one or two of the extremities, marked variability of the symptoms from day to day, and the inconsistencies of weight gain, normal or poor appetite, together with tachycardia and nervousness, are also warnings that never should be overlooked. Because hyperthyroidism is a generalized metabolic disease, the symptoms must be general and consistent and follow definite physiologic patterns

The physical examination is the second important part of any differential diagnosis and should include a study of the blood pressure and pulse rate. But most important of all, it is concerned with adequate palpation of the neck. Regardless of the symptoms, when no thyroid pathology can be demonstrated the diagnosis of hyperthyroidism is entirely unwarranted. One must develop a technic whereby the thyroid gland can be adequately and thoroughly palpated. One must have a knowledge of the size, consistency, and feeling of the normal gland so that pathologic changes, if present, may be recognized. It is my feeling that no patient should be subjected to a subtotal thyroidectomy where changes in the gland cannot be demonstrated. The only exception might be in the cases of completely substernal goitre. In that group of patients, where slight hypertrophy of the gland is found together with suggestive symptoms, more careful study will be necessary. This should include prolonged observation over a period of weeks or months, possibly a trial period of iodine as a therapeutic test, and sometimes in selected cases hospital study will be necessary. A pulse rate that fluctuates widely with exertion and drops to normal when at bed rest is

almost certainly not due to hyperthyroidism

The metabolic readings quoted by Dr Beck vary from plus 40 to plus 21.3, and in a few instances where a second record was made after iodine administration there was a fall in rate from plus 5 to minus 7. From our experience it appears to me to be very likely that the rates would have dropped to normal in two or three days without iodine, just as they did with the drug. Many patients are referred to our clinic who have been advised to have a thyroidectomy because of a single elevated basal metabolic rate. When such patients are put at rest and repeated determinations made under suitable conditions, the rate quickly drops to normal in two or three days.

The basal metabolic rate is usually a disastrous diagnostic aid. There are so many opportunities for error in its determination that the test is of far greater harm than good. Many patients are being subjected to operation largely on the basis of a reported elevated metabolic rate that does not represent their true condition. It is particularly in this type of patient, the neurotic individual, that incorrect and usually elevated rates are reported.

I would venture the guess that at least in some of the cases reported by Dr Beck the decision to operate was based largely on the reported basal metabolic rates. Had a more careful study been made, these patients might have been saved unnecessary surgery. Much more reliable diagnoses will be made when faith is placed in the history and physical examination rather than when a mechanical device is credited with the ability to establish correctly every diagnosis.

Dr John J. Rooney, Rochester, N Y—Dr Beck is to be congratulated for his splendid paper and encouraged to report more of these cases when they come under his care. He and a few others have lately been bringing to our attention the fact that these functional conditions can very closely simulate states of true hyperthyroidism. However, I feel this fact is not sufficiently, if at all, appreciated by large bodies of our physicians. To a great many, a patient presenting symptoms and signs of "nervousness," loss of weight, palpitation, tremors, increased pulse rate, and a definite increase of the basal metabolic rate, with or without an enlargement of the thyroid gland, can mean only one thing—hyperthyroidism, and invariably the gland is removed. The cases that Dr Beck and others report do not numerically reflect the true situation. Large numbers of these cases of anxiety state have thyroidectomies and show the usual postoperative improvement.

which would invariably occur after any operation if they were told that the procedure was going to cure them. And so after a stay of seven to fourteen days in the hospital they are discharged as 'improved'. Usually that is the last entry upon their hospital record. It does not show the follow up over a period of months when many have worn off the psychic improvement that any operation would have caused and return to their doctors with much the same symptom complex they had had previously. The physician then recognizes either that he made a mistaken diagnosis originally or that he cured the toxic state by operation and that now he or most likely she has a superimposed psychoneurosis, and he treats her accordingly usually without hospitalization. Also few of these people are referred to psychiatrists. Thus the records of the hospitals and psychiatrists are misleading as to the prevalence of these affairs.

I should here like to add one of my cases. A young white married woman of 26 whose chief complaints were nervousness, loss of weight, palpitation and excessive perspiration. These began about eleven months previously soon after the death of her mother of whom she was very fond. The hot days bother her much more than they did previously and she prefers the winter to the summer. Her appetite has been "fair" and she sleeps well.

The family history shows that both of her mother's parents died of tuberculosis; her mother suffered high blood pressure and succumbed after a third stroke. The father is living and in good health at the age of 65. Her five sisters and three brothers are all living. There is no history of thyroid disturbance in the family.

She had the usual childhood diseases but no serious illnesses. Menses began at the age of eleven and have been regular every thirty days and lasting five or six. She indulges in tobacco and alcohol moderately.

Physical examination reveals a thin fidgety young white woman with abundant fine hair; the skin generally is warm and moist and fine textured but the hands are cool and clammy. She is 64 inches tall and weighs 106 pounds. Her eyes are 'starey' and remain unblinkingly open for long periods of time. There is no definite exophthalmos, however no lid lag and the power of convergence is well maintained. The extended hands show intermittent fine to coarse tremors. The thyroid was not palpably enlarged. The examination of the heart and lungs were essentially negative except that the cardiac rate was 120 and the blood pressure 138/74.

Because of the family history of tuberculosis,

I considered it advisable to have her chest x-rayed. The lungs were negative roentgenologically. At her next visit, one week later she had lost another 4½ pounds. Her pulse was then 110 and B.P. 144/80. She maintained her appetite was good and ate well but continued to lose weight. A basal metabolic rate taken two weeks after I first saw her was plus 34. Repeated three days later it was plus 29. The conditions were satisfactory upon both occasions.

The patient was admitted to the hospital for observation under bed rest without any medication. There the first B.M.R. was plus 25 four days later was plus 10. Her pulse ranged from 120 down to 70 and her blood pressure varied between 124/64 and 107/68. The blood cholesterol was 190. She gained weight, her nervousness and palpitation disappeared, and she felt fine during her stay of two weeks in the hospital.

I saw her three weeks after her discharge from the institution and she was still feeling very well. The tremor had disappeared. Her weight continued to increase—being then 112 a gain of 11 pounds from her low point. The pulse was 82, and B.P. 118/78.

Upon going further into the history I found that she desired to become pregnant and so far in her two years of married life she had not been able to and was worrying considerably about it. She and her husband had a small apartment and not much to keep her occupied. Upon my advice she obtained a little part time job. Fourteen months later she was still well and happy.

There are two important things in this connection. The first one which Dr. Beck and others are doing is to keep us conscious of the similarity of anxiety state and mild to moderate thyrotoxicosis. If we do not suspect the possibility of an entity and keep it in mind we are not likely to make the proper diagnosis. The second item is to make the differentiation between the two possibilities. Here I feel strongly that no single criterion will perform the job. It must be seen as a whole—the completed picture with all details filled in, foreground background highlights, and shadows. This consists of a careful history—very important that it be full and cover the personal field thoroughly—physical examination and laboratory data. The latter two should be repeated as often as necessary over a period of time. The best place to do this is in a hospital because the complete rest and especially the change of environment are of help in diagnosis. When we see these patients even if they turn out to be hyperthyroids, we are not impressed that they are emergencies and need to be rushed off to the hospital, prepared with

TABLE 1—TUBERCULOSIS CASE FINDING SURVEYS

Place	Number Tested	Positive	Number X-rayed	Latent Disease	Observation (Suspicious)	Active
Onondaga Co (Brayton)	7,237	Grade 25% High 30%	1,866	397 21%	21 1 1%	29 1 5%
Chautauqua Co (Rathbun)	30,000		7 171 High	538 7 5%	50 0 8%	310 4 3%
Massachusetts (Chadwick)	400,000	28%	112,000		3 5%	1 6%
New Haven (Edwards)	6,393	Not tested	6,393 Paper film		463 14%	415 6 4%
Sussex Co, New Jersey			692		205 30%	30 4 3%
Hampton, Va			475	205 43%	50 10%	10 2 1%
N Carolina (McCaun)	25,048	5 659 27 6%	4 707		674 12%	431 7 62%
Syracuse (2 years)	4,281	1 448 34%	1,266	663 52 3%	127 10%	19 1 5%

Prepared from data available in April, 1937—shows comparative findings of surveys in eight localities  
 Dr Edwards of New Haven using paper films x rayed without first tuberculin testing and found 6 4% tuberculous.  
 Using tuberculin test and then x-raying positive reactors he found 12% active cases

TABLE 2—TUBERCULOSIS SURVEY SYRACUSE SCHOOLS—11TH AND 12TH GRADES  
TUBERCULIN TEST SUMMARY—1934-1935

	Public Schools	Parochial Schools	Combined
Registration	3,278	487	3,765
Number tested	1,857—56 0%	302—62%	2,159—57%
Number read	1,848—99 5%	296—98%	2,144—99 8%
Positive	636—34 4%	109—36 8%	745—34 7%
Negative	1 212—65 5%	187—63 1%	1,399—65 2%

Syracuse Survey—first year showed slightly higher percentage of positive reactors in parochial schools—nearly 37%.  
 The combined average of 34 7% is considerably more than the 23 5% who reacted positively this year (1938-1939)  
 in the same grades

TABLE 3—TUBERCULOSIS SURVEY, SYRACUSE SCHOOLS—11TH AND 12TH GRADES  
X-RAY SUMMARY—1934-1935

		Public Schools		Parochial Schools		Combined
Number x rayed		540		89		629
M	276		42		318	
F	264		47		311	
Class A		200—37%		14—15 7%		214—34% 10% of all
M	99		6		105	
F	101		8		109	
Class B		271—50 1%		57—64%		328—52 1% 15% of all
M	139		27		166	
F	132		30		162	
Class B2		61—11 1%		15—16 8%		76—12% 3 5% of all
M	34		7		41	
F	27		8		35	
Class C		8—1 4%		3—3 3%		11—1 7% 0 5% of all
M	4		2		6	
F	4		1		5	

Class A—essentially negative

Class B—apparently healed childhood type.

Class B2—suspicious of activity

Class C—probably active

First survey—findings by x ray of positive reactors Higher percentage of active and suspicious cases in parochial schools Also about equal number of each sex in each classification The active cases were 0 5% of all tested and 1 7% of those x rayed

## Discussion

Dr Ralph Horton, *Oneonta, New York*—  
 I wish to compliment Dr Ayling on the way he has gone about this work in the Syracuse schools and on the conclusions he has reached I shall confine my remarks to the case-finding aspects of this subject. The value of any procedure in case finding should be considered in comparison with other methods It is said that there is need for a standard of tuberculin in order that different experiences may be com-

pared If this is true, we probably should also have a standard for interpreting the pathology found when the reactors are x-rayed

The hospital with which I am associated serves nine rural counties in upstate New York and provides a consultation diagnostic clinic service for patients and their physicians throughout that district In case finding, we have been primarily interested in those cases that are, or may become, spreaders of tubercle bacilli This practically limits us to cases of the re-

TABLE 4.—TUBERCULOSIS SURVEY SYRACUSE SCHOOLS  
SUMMARY OF POSITIVE REACTORS—1934-1935 AND 1936

Class	Without Contact Symptoms or Family History	With Contact Symptoms or Family History	Cont.	Symp	P. H.	Tubercula Reaction
A	281	176	61 13 3%	140 30 6%	45 9 8%	1+ 191 2+ 181 3+ 80 4+ 31 Uncl. 14
M.	220					
F.	237					
	457					
B	260	374	133 50%	292 44%	124 18 7%	1+ 217 2+ 250 3+ 130 4+ 36 Uncl. 25
M.	350					
F.	313					
	663					
B2	44	83	47 37%	73 57%	37 20%	1+ 33 2+ 50 3+ 26 4+ 13 Uncl. 5
M.	71					
F.	56					
	127					
C	2	17	7 37%	16 84%	8 42%	1+ 2 2+ 7 3+ 8 4+ 2 Uncl. 0
M.	10					
F.	0					
	10					

Class A—essentially negative.

Class B2—suspicious of activity

Class B—apparently healed childhood type

Class C—probably active.

Summary of findings for first two surveys showing tuberculin reactions in each classification—only two 4 plus reactors in Class C, whereas there are many in other classes—even 21 in Class A. Apparently the amount of reaction to a tuberculin test is in no way indicative of the amount of disease one will find by further study. Two of the active "C" cases were only 1 plus reactors. Also note that 2 C cases gave no history of contact symptoms or of tuberculosis in relatives.

TABLE 5.—TUBERCULOSIS SURVEY SYRACUSE SCHOOLS  
SUMMARY—FOUR YEARS

Grades and Year	Reg.	Tbn Tests	Number Read	Pos.	Neg.	Number X-rayed	A	B	B2	C
11 & 12 1934-1935	3,785	2,156 57%	2,144 90 8%	745 34 7%	1,399 65 2%	639 84 4%	214 34%	328 52 1%	76 12%	11 1 7%
8 & 11 1935-1936	3,553	2,122 52 7%	2,120 99 4%	703 33%	1,417 66 9%	637 90 8%	243 38%	335 53 6%	51 8%	8 1 2%
10 & 11 1936-1937	5,201	2,358 45 3%	2,335 99 8%	843 36 8%	1,512 64 2%	771 91 4%	364 47 8%	368 47 7%	32 4 1%	7 0 9%
0 & 10 1937-1938	0,090	3,753 50%	3,739 99 6%	1,124 30 1%	2,615 69 9%	1,068 93 2%	444 42%	548 51 7%	64 6%	2 0 2%
Total	19,209	10,392 54 1%	10,368 99 6%	3,415 32 0%	6,943 67%	3,095 90 0%	1,265 40 0%	1,570 50 0%	223 7 2%	28 0 9%

Class A—essentially negative.

Class B2—suspicious of activity

Class B—apparently healed childhood type.

Class C—probably active.

Summary of four years' work—average response was 54 1% of registration—over 3,000 were x-rayed, 28 active and 223 suspicious cases were found. There has been a decrease each year in the number of active C cases found. This year the fifth in our survey there is also a marked decrease in the percentage of positive reactors.

infection or adult type of the disease. The primary or childhood type infections that we see in children, we regard as a challenge to us in locating the source of their infections as it is these spreaders in whom we are most interested. While some of the childhood type infections may require treatment most of them do well if the contact is broken, and in many it is merely an incident of past history and of little present clinical importance. Our experience has been that we can find more cases of tuberculosis by the examination of adults particularly contacts, patients with suspicious symptoms those in

certain industries and those in the lower economic groups than by any other method. In these patients we find the chief value of the tuberculin test in differential diagnosis and as a guide to a certain extent in determining how frequently and for how long contacts should be periodically examined. If contact with the source case is permanently broken we believe that negative reactors can be discharged from further supervision.

Through our clinics we have provided x-rays for the reactors of tuberculin tests that have been made by school physicians and county



TABLE 6—TUBERCULOSIS SURVEYS, SYRACUSE SCHOOLS  
SUMMARY OF POSITIVE REACTORS—FOUR YEARS

Class	Without Contact, Symptoms or Family History	With Contact, Symptoms or Family History	Cont.	Symp	F H
A	712	553	145	465	121
1,265			11 4%	36 7%	9 5%
B	689	890	318	728	279
1,579			20 1%	45 9%	17 6%
B2	77	146	68	138	59
M.	184		30 4%	60 9%	26 4%
F	89				
	223				
C	3	25	11	22	12
M.	15		39 2%	78 5%	42 7%
F	13				
	28				

Class A—essentially negative

Class B—apparently healed childhood type

Class B2—suspicious of activity

Class C—probably active

It is to be noted from this table that although the highest percentage (39 2%) giving a history of contact were "C" cases, the remaining larger number of cases in this group (60 8%) would have been missed if our efforts were confined to examining known contacts. This is true also for the B2, or "suspicious" cases.

medical societies in eight of the nine counties of the hospital district. Perhaps because we are dealing with schools in smaller communities than Dr Ayling's group, our percentage of reactors among high school juniors and seniors has been slightly less than his—27 per cent in our series. The yield in cases of reinfection type pulmonary tuberculosis was 0.1 of 1 per cent in this group. One would think from a study of the morbidity and mortality statistics that the age group of high school juniors and seniors would yield a significant number of cases of reinfection type tuberculosis. Possibly the reason we do not find them is that in many instances the cases in this age group have already been discovered through the operation of a diagnostic service that provides x-rays of contacts and patients with symptoms.

When all school grades were tuberculin tested, we found only 19 per cent reactors, and the yield of cases so small that we came to the same conclusion as Dr Ayling—that from a case-finding standpoint, it is not worth while to include grades below the high school juniors and seniors. The morbidity and mortality statistics may explain this. Tuberculosis is a relatively benign disease among grade school children, and of all the deaths from tuberculosis, only 3.4 per cent of them occur in those under 15 years of age, and the majority of these are in infants and preschool children.

In the examination of school faculties and employees, we sometimes omitted the tuberculin test and x-rayed the entire group. We found 0.6 of 1 per cent of this group to have active pulmonary tuberculosis—six times as much tuberculosis as in the pupils. We consider the examination of this group one of the most

important in a school tuberculosis program, not only for case finding but from the standpoint of education and public health.

Dr John H. Korn, *Olean, New York*—Dr Ayling has, I believe, correctly appraised the value of the tuberculin test among school children, at least here in the North, whether old tuberculin or purified protein derivative be used.

When a school health director makes use of modern means to find any active tuberculosis that may be present among the pupils, he is to be commended. His methods may not be perfect. In fact, no method so far has been found to be perfect as a case-finding procedure. If I call attention to the limitations of Dr Ayling's program, it is not because I would do the job differently were I in Dr Ayling's place. That there are limitations, however, is evident.

Not all young people reach the junior class in high school. Many drop out during the earlier years. Those who drop out, and usually they would be in the lower economic group, would not be reached by Dr Ayling's program. Moreover, with all the splendid preliminary educational effort that Dr Ayling makes, only 54 per cent of those juniors and seniors enrolled consented to tuberculin testing. Presumably those not tested were not x-rayed.

Retesting annually of nonreactors is good but not good enough. As an illustration I may cite an experience in Cattaraugus County during the school year. A family moved into the county from Indianapolis with one daughter aged 18 who had a cough. Fortunately a physician suspected tuberculosis. Her sputum was positive. Within a week she was in the

sanatorium. The brother and two sisters showed strongly positive tuberculin reactions. This girl might have entered school and infected a number of other pupils before the routine annual tuberculin testing and x raying would have discovered her. This emphasizes Dr Ayling's very good point that much of the success of case finding must depend on the family physician.

Dr Ayling found in Table 6, among contact reactors 2.0 per cent who probably had active tuberculosis but among noncontact reactors only 0.2 per cent. In other words had an official or nonofficial case-finding agency properly x-rayed all contacts, this 2.0 per cent would have been discovered routinely. In Cattaraugus County where contacts have been consistently followed, the routine x-raying of juniors and seniors in high school has been practically abandoned since so few cases other than those found through the examination of contacts, have been discovered.

Where the tuberculosis death rate is only 29 per 100 000 as in Syracuse, one would expect the infection curve and the attack rate to be low during adolescence. Dr Plunkett of the

State Department of Health and others on the basis of experience, urge that more emphasis be laid on case finding among adults since the incidence of pulmonary tuberculosis increases with age. Our Cattaraugus County experience leads us to emphasize this also. In so far as this affects the school program it would lead to stressing the x raying of teachers and other school employees. I suppose Dr Ayling sees that this is done, though he has not mentioned it in his paper. In Cattaraugus County in the past year out of about 100 teachers x rayed 3 were found to have significant pulmonary tuberculosis. Two of these are now in sanatoria. The third is being allowed to continue under observation, as the lesion seems to be stabilized.

Where the tuberculosis death rate is high and there is no adequate case finding agency operating in the community at large, a school program such as Dr Ayling's will discover a good many cases of tuberculosis that would otherwise be missed. When the death rate is low and such community case-finding procedures are provided for the justification of a separate school program may depend on the cost per diagnosis.

## ABORTIONS BY THE MILLION

A war which each year snuffed out the lives of 10 000 Americans and made permanent in invalids of another 100 000 would scarcely be considered a minor one and yet this is the toll exacted yearly of American womanhood by abortion. Obviously it is impossible to estimate the number of abortions which are performed in this country but a figure as high as 2,000 000 is often cited and the most conservative estimates place the number in excess of 600,000. It is a natural concomitant that a high mortality and a high morbidity should follow in the wake of such a widespread practice, since the act itself is illegal and therefore in the hands of women unversed in surgical technique and of doctors whose unholy desire for money makes them oblivious to the welfare of their patients.

Contrary to general belief women who seek a termination to their pregnancies are not those who have conceived out of wedlock except in a small proportion of cases says a writer in *The Medical World*. Studies have shown that the highest percentage of abortion fatalities has occurred in married women in the fourth decade of life who have been pregnant six or seven times and presumably this is an index to the status and ages of women who seek abortion.

Undoubtedly the chief cause is economic. Normal sexual relationships are desired and practiced by couples who cannot afford large families, and the professional abortionists throughout the land profit thereby to the extent of the almost unbelievable sum of \$100 000 000 a year. Is it any wonder that a business which collects so much money can protect itself so well that but three doctors were convicted of the crime in New York City in nearly twenty years and but nine in Chicago in ten years? The abortion business is so tied in with crooked politicians and police that a conviction is well nigh impossible. Probably any city doctor could name offhand several abortionists in his community who are doing a thriving business and whose means of livelihood are known to all and yet go on year after year without a curb to their activities.

When one speaks of the means of livelihood of these illegal practitioners he is talking of sizable figures. From \$20 000 to \$30 000 a year is a not too unusual income so that abortion has been called the most profitable medical specialty. The marvel is not that so many physicians have prostituted their profession but that so few have placed the lure of easy money above the ideals of medical practice.

# STUDIES IN WATER METABOLISM IN RELATION TO THE NERVOUS SYSTEM\*

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IT IS well known that certain diseases and injuries of the nervous system may produce disturbances in the water exchange. These disturbances generally are manifested by polyurias of varying duration. Some are accompanied by polydipsia, or excessive thirst, in which event they are called diabetes insipidus. This, too, is generally considered to be primarily a polyuria of either temporary or permanent duration. Our studies indicate that there are at least two types of diabetes insipidus, and that in each of them diuresis is not the only function disturbed.<sup>1</sup> Thirst, water metabolism, and sodium chloride metabolism also appear to be deranged. The normal operation of these functions is regulated by an intricate hypothalamico-hypophyseal mechanism.

Experimental operations in the pituitary region of the dog frequently cause a striking polyuria and polydipsia of about seven days' duration. When the water intake is restricted to the normal amount, the polyuria is of a very low grade and in some instances is nearly imperceptible. It therefore seems likely that the marked polyuria observed in these cases of temporary diabetes insipidus is largely secondary to the polydipsia. This conclusion appears substantiated when temporary diabetes insipidus is produced in the dog that has a fistula of the esophagus. In such a dog, water that is sham-drunk does not enter the body. The fistulous dog may be maintained indefinitely with a diet of food and water which suffices to keep him adipsic. After operation the fistulous animal has a slight

polyuria for a day or two. In addition, however, he has a polydipsia and sham-drinks persistently for about seven days. It is evident that temporary diabetes insipidus consists of simultaneous polyuria and polydipsia. Temporary diabetes insipidus is commonly seen in human subjects after the excision of pituitary and suprasellar tumors.

Permanent diabetes insipidus may also be produced by experimental lesions in the pituitary region. Permanent diabetes insipidus occurs in two phases separated by a remission. The temporary initial phase lasts about seven days. After the remission, the permanent phase begins on about the tenth day. When permanent diabetes insipidus is produced in a dog with an esophageal fistula, the temporary phase is recognized by its slight polyuria and great polydipsia as being identical with temporary diabetes insipidus. The permanent phase, however, which reaches its crest sixteen to twenty-one days after operation, is distinctly different. There is no polyuria, the amount of the urine appears to be governed by the limited water intake. The sham-drinking persists, however, as long as the animal is kept alive. This indicates that in the permanent phase of experimental diabetes insipidus polydipsia is the primary factor, and that the polyuria of the intact dog is secondary to the increased water intake. The chronic diabetes insipidus suffered by man is undoubtedly the counterpart of the permanent phase in experimental animals. Because the onset is usually insidious in man, the initial temporary phase either does not develop or fails to be recognized.

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These experiments confirm (1) the long-recognized fact that polyuria may result from nervous lesions, (2) that excessive thirst, or polydipsia, may also be provoked by nervous lesions, and (3) that two different types of diabetes insipidus are obtained by the same lesion in the pituitary region.

There are other features of the permanent phase of experimental diabetes insipidus that have not received the attention they deserve. (1) When the intake of dogs is unrestricted, there is a disproportion between the intake and output, that is, the difference between the intake and output is greater than it was before operation. This disproportion disappears when the intake is restricted to the normal amount. (2) Diabetic dogs invariably gain weight, often nearly doubling their weight within a year. On the other hand, when the intake is restricted, the diabetic dog maintains a constant weight. These observations suggest that the diabetic dog does not lose water, but on the contrary gains water when the polydipsia is satisfied by water ingestion. Many observers have noted a polyuria when the intake is restricted for short periods, but we have found that excessive urine output, if present at all, lasts only a day or two. Thereafter the urine output is proportional to the restricted intake indefinitely, and signs of dehydration do not develop. It appears probable, then, that the regulation of water balance is impaired as the result of these nervous lesions that produce polyuria and polydipsia.

The sodium chloride metabolism likewise appears to be deranged in diabetes insipidus. When a dose of sodium chloride is given, the polydipsia and polyuria are temporarily aggravated, and the excess sodium chloride is rapidly eliminated. The increase in the water exchange is greater than it is in the normal animal after a similar dose of sodium chloride. When an isotonic (0.9 per cent) solution of sodium chloride is given the diabetic dog to drink instead of water, equilibrium is not achieved thus easily, for the result of the increased fluid ex-

change is the ingestion of more sodium chloride, which in turn further increases the fluid exchange. If this is permitted to go on indefinitely, the dog achieves equilibrium at a level of water exchange ten times the usual diabetic level and fifty times the normal level. In fact he may drink his weight in saline solution in twenty-four hours. Hypotonic drinking solutions of sodium chloride similarly increase the water exchange but to a less striking degree. In the normal individual sodium chloride drinking solutions do not increase the voluntary water intake by more than about 10 per cent. These experiments indicate that sodium chloride is either diuretic or polydipsic, but the clue as to which is not forthcoming.

When the drinking solution of sodium chloride is limited to the amount of water usually drunk, a different result ensues. The drinking solution is consumed more rapidly than it is excreted. After the limited amount of solution has been entirely consumed, the animal has a polyuria which causes an actual water deficit. We therefore conclude that sodium chloride is both polydipsic and diuretic in diabetes insipidus.

The substitution of sodium chloride solution for drinking water also increases the fluid exchange in a dog with latent diabetes insipidus. This observation, we believe, is of clinical significance, for in human individuals a low grade or doubtful diabetes insipidus may be demonstrated by the ingestion of sodium chloride in physiologic proportions. The ensuing augmentation of the fluid exchange or the complaint of polydipsia does not occur in the normal individual.

The causes of these disorders are only partially understood. It is evident that a different mechanism is responsible for each of the two phases of diabetes insipidus described.

A hypothalamico-hypophyseal nervous-hormonal mechanism seems to be concerned in the regulation of water balance.<sup>2</sup> A certain derangement of this mechanism is responsible for the permanent phase of diabetes insipidus. From

the supraoptic nuclei in the hypothalamus, unmyelinated nerve fibers course down the infundibulum to the pars nervosa of the hypophysis. This innervation appears to be essential for the elaboration of posterior lobe principles, which normally regulate the water economy. Interference with the nervous innervation of the pars nervosa, or removal of the posterior lobe and stalk, results in the permanent phase of diabetes insipidus. The pars anterior is also concerned in the regulation of water balance, for its presence is essential to the development and maintenance of the permanent phase of diabetes insipidus. Thus several specific injuries may result in diabetes insipidus: (1) destruction of the supraoptic nuclei (Fisher, Ingram, and Ransom<sup>2</sup>), (2) interruption of the hypothalamico-hypophyseal tract as it enters the stalk (hypothalamic "punctures"), (3) resection of the stalk (Keller<sup>3</sup>), (4) compression of the stalk with a silver clip (Cushing,<sup>4</sup> and others), and (5) posterior lobectomy including the stalk (Fisher, Ingram, and Ransom,<sup>2</sup> and others).

The temporary phase of diabetes insipidus, however, appears to differ from the permanent phase in both nature and origin. In experimental animals and in man it may occur alone, whereas the permanent phase nearly always is preceded by the temporary phase. It may also be superimposed upon a previously existing permanent phase. The temporary phase not only follows all the injuries that

result in the permanent phase, but also follows others that fail to cause permanent diabetes insipidus, such as total hypophysectomy and simple manipulations in the pituitary region. The mechanism responsible for the temporary phase is not understood. It is probable, however, that it is caused by the temporary traumatic paralysis of other factors that are concerned in the regulation of the water balance.

Diabetes insipidus is an instrument by means of which further insight is gained into the physiologic processes that control or regulate the water economy of the body. There are two phases or types of diabetes insipidus, which are unlike each other. These indicate that there may be two mechanisms in the central nervous system that influence the water economy. The permanent phase is caused by the derangement of a mechanism involving hypothalamus, infundibulum, pars posterior, and pars anterior of the pituitary gland. Another mechanism is seemingly responsible for temporary diabetes insipidus. Four processes have been found to be controlled by one or both of these mechanisms: diuresis, thirst, water exchange, and sodium chloride balance.

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### FAT FIELD FOR FAKIRS

There is more quackery in the field of weight reduction than in anything else, Dr. E. Perry McCullagh, of the Cleveland Clinic, told the Alumni Association of the University of Buffalo Medical School recently.

"With proper management, any obese individual can be brought within the normal range," he declared.

"There is more quackery in this field than in anything else. Corsets and belts are useless in reducing obesity. Powders, such as bath powders, are useless. Laxatives are particularly bad. The only good method to follow is a carefully calculated diet, low in calories, adequate in proteins, minerals, and vitamins, and under the guidance of a physician."

## THE LIMITATIONS OF THE INJECTION TREATMENT OF HEMORRHOIDS

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(From the Rectal Clinic and Surgical Service of Dr. John Garlock, Mt. Sinai Hospital, New York City)

ALTHOUGH the injection treatment of hemorrhoids is an accepted form of therapy today, it is by no means the panacea that some proctologists would have us believe. Unfortunately, because the procedure is easily mastered, it is being used for a variety of conditions for which it is totally unsuited. The method has been widely publicized as a painless "cure" for hemorrhoids, requiring neither hospitalization nor loss of time from work. The lay public believes that hemorrhoids are the cause of most rectal conditions, and when they become afflicted with a rectal ailment, they often request the injection treatment before an examination is made. If the patient does have hemorrhoids, pressure is brought to bear on the physician to administer the injection therapy, irrespective of the indications. The frequent failures and the occasional painful complications that may follow are undoubtedly bringing the method into disrepute. This is a distinct loss to both the profession and the public, for the injection treatment has a definite place in proctologic therapy. It is of primary importance, therefore, that physicians realize that there are limitations to the sclerosing therapy of hemorrhoids.

It is important to stress at the beginning that the injection treatment of hemorrhoids is not a cure, but merely a treatment productive of temporary beneficial results. Upon the institution of proper rectal hygiene and habits, the temporary relief originally obtained by the injection therapy may, in properly selected cases, result in more or less permanent cessation of symptoms. The object of the treatment is the formation of fibrous tissue by a submucous, perivenous infiltration of an irritating solution. This fibrous tissue performs two functions. By its presence between the

plexus of veins and the overlying mucous membrane, it lessens the tendency of the veins to rupture with subsequent bleeding. By virtue of the ultimate contraction of this scar, the varicosities become obliterated by pressure. Whether or not the effect of this fibrous tissue is permanent is debatable, but its immediate result is certain. There are some who claim that the purpose of the injection treatment should be the production of sloughs, which destroy the hemorrhoid completely. This could be an effective method were it not for the fact that it is impossible to control the size and subsequent extension of the slough. Rather than risk the undesirable complications that might follow any attempt to cure hemorrhoids by the production of numerous sloughs, it is obviously much safer to extirpate them surgically. Only by this method can one safely limit the amount of tissue to be removed.

There is no hard and fast rule concerning the type of case to be selected for the injection treatment. In general, it may be said that the ideal case is one presenting uncomplicated internal hemorrhoids that do not protrude or protrude only slightly on defecation. Usually bleeding is the presenting symptom. In this group, one can assure the patient of immediate relief from bleeding, and permanent freedom from symptoms, provided the injection treatment is thorough and proper bowel habits are developed. Uncomplicated large internal hemorrhoids that protrude to such an extent as to require manual reposition following defecation, may also be injected, in these cases, however, the results are short-lived. Inasmuch as the prolapse is due to redundant mucous membrane, it is obvious that the fibrous tissue obtained by the treatment will eventually become

stretched by repeated acts of defecation, and that the prolapse will recur. Before injecting this type of hemorrhoid, the patient should be made cognizant of the temporary benefits and of the great possibility of recurrence. Furthermore, the injection treatment in this type of case is not without danger. There is always the possibility of a prolapse occurring soon after an injection, especially during the act of defecation. If this prolapse is not replaced immediately, the entire hemorrhoidal area may become imprisoned outside the rectum by the spastic sphincter muscles and may eventually become gangrenous.

The injection method is contraindicated under certain conditions. Irrespective of the method or solution employed, the injection of external hemorrhoids will induce severe pain, swelling, and even slough. Thrombosed external hemorrhoids are not amenable to injection therapy. If they are small and slightly painful they will subside quickly, if they are large and painful, relief may be obtained by excision. The acutely prolapsed internal hemorrhoid is usually inflamed, thrombosed, and edematous, injection treatment under such circumstances is not indicated, and may be followed by disastrous results.

Many cases of small internal hemorrhoids are associated with other rectal conditions that must be treated surgically, such as perianal fistula, crypt abscess, hypertrophied and inflamed papillae, anal ulcer, etc. Although it may be correct to excise the associated lesions and subsequently inject the hemor-

rhoids, it is wiser and more expedient to remove the entire anal pathology at one time.

It is important to emphasize that injection treatment should never be employed in the presence of infection. If, for one or another reason, the sclerosing therapy must be used, the infection should be eradicated first.

It is often necessary to substitute injection therapy for surgical treatment because of constitutional conditions that contraindicate operation. Thus, pregnancy, senility, severe diabetes, recent coronary artery occlusion, severe vascular or renal disease, and many other conditions call for injection treatment even though surgical therapy ordinarily would be indicated. In these cases, however, all that one should attempt to achieve and all that one should expect, is temporary relief of symptoms.

This discussion is intended to emphasize the limitations of the injection treatment, and should not be construed as an indictment of the method. The apparent simplicity and ease with which the injections may be given has caused its widespread and indiscriminate use. Because of the eagerness of patients to avoid operation, the indications for and the limitations of this form of therapy have too often been completely disregarded. The purpose of this paper is to call to the attention of the profession the facts that the sclerosing therapy of hemorrhoids has a limited field of usefulness, that it is a treatment and not a cure, and that cases to be accorded this treatment should be chosen with great care.

#### APPENDICITIS DEATH RATE RISING

The death rate in the United States from appendicitis is a challenge to the medical profession and the American people, the *J A M A* declares in an editorial.

It points out that despite adequate knowledge and technic now available, the mortality rate from acute appendicitis has been steadily rising during the past few decades.

The two factors most responsible for the increasing mortality, the significance of which the

public should be made to understand, are the increasing use of cathartics for abdominal pain and the delay in the diagnosis and treatment of acute appendicitis. "Both factors are associated when anyone goes to a drug store for relief from a 'belly ache' and indulges in catharsis," the *Journal* states. "This point must be repeatedly emphasized, those with abdominal pain must be warned repeatedly against the dangers of the great American habit of purgation."

# ELECTROLYSIS—A SURGICAL PROCEDURE

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**T**HERE are few mechanical devices and procedures that have been used in medicine over a number of years without radical modification. It is interesting to note that electrolysis has been in continuous use for the treatment of many dermatologic conditions ever since Michel, in 1875, permanently cured a case of trichiasis. It is also interesting to observe that electrolysis is the only method for removing permanently and safely unwanted hairs on various parts of the body. And it is the method of choice in treating many other dermatologic conditions.

Electrolysis is considered to be surgical ionization by some. It involves the destruction or the decomposition of tissue with the negative pole of a galvanic current. In chemistry, the term electrolysis involves the decomposition of a chemical compound, i.e., the separation of an electrolyte in solution into its constituent parts by a galvanic or direct current. Electrophoresis is erroneously called medical ionization and it includes iontophoresis. When applying medications to the body, either the positive or the negative pole may be the active electrode depending upon the drug used. The remaining indifferent electrode is used on some other portion of the body. Medical ionization can be utilized without the necessity of using any drugs. MacKee<sup>1</sup> states that it is averred that with the negative pole there is vasodilation and a softening effect on new formed tissue (scars) while with the positive pole there is vasoconstriction and hardening.

No attempt is made in this paper to elevate the technic of electrolysis to the

exalted position of major surgery. I shall attempt to develop the thought that electrolysis involves not only the actual manipulation of the needle holder as is taught by some commercial and manufacturing houses, but also a fundamental knowledge of many phases of medicine, including anatomy and bacteriology. This knowledge is possessed only by physicians.

At the present time, surgical ionization is widely used by laymen, most of whom are unqualified, inexperienced, and poorly trained. They work under such misleading names as electrolygists, hair specialists, dermatologists, beauty culturists, etc. Some lay operators become very proficient in the mechanical handling of the needle, but they lack the necessary training that would enable them to differentiate benign from malignant lesions, to avoid infection, to institute proper antisepsis, to prevent disfiguring scars. A lay operator taught by physicians and working under the supervision of a physician qualified by training and experience is invaluable.

At this point, it is advisable to discuss the many serious conditions resulting from improperly done electrolysis.

*Scars and Pits*—These permanent disfigurements probably result more frequently than any of the other complications. Those possessing inadequate knowledge, who are inexperienced and poorly trained generally apply too much current or leave the current on too long. More often, in treating hypertrichosis, the electrically charged needle is not in the follicle and several insertions through the skin produce the scars. This permanent damage to the skin frequently affects the patients psychologically.

<sup>1</sup>MacKee O. M. Handbook of Physical Therapy  
A.M.A. Chicago Illinois p. 425.



Some become introspective and may even develop a marked inferiority complex. The return of the hair adds considerably to the mental agony of these patients and may cause them to become psychopathic.

*Infections*—This complication also occurs frequently. As a rule, only a small pustule develops where the needle was inserted. This may result from improper sterilization of the needle, dirty hands, inadequate sterilization of the integument of the patient, or from lowering the resistance of the skin by the combined trauma of the electric current and the insertion of the needle. Occasionally more profound infections occur even to the point of causing abscess formation. It is even possible for erysipelas to develop around one of these infected areas. When the infection occurs in the nose, on the upper lip, and over the glabella it may become so serious as to cause death. There is a direct venous communication between these areas and the lateral sinuses and it is easy to see how a brain abscess might develop. Danger in removing hair from the glabella, eyebrows, upper lip, and inside the nose is real. Expert medical operators will never traumatize the tissues within the nose and will not remove hairs from the areas mentioned without good cause and without careful preliminary practical sterilization of their hands, the affected areas, and their instruments.

*Edema, Blood, and Pain*—The improper insertion of the needle may cause an edematous reaction around the needle. When this occurs while treating hypertrichosis, the needle should be withdrawn because it is not in the hair follicle. A small droplet of blood appearing around the needle indicates that the bottom of the follicle has been pierced. It means that a small blood vessel has been punctured. Pain is more severe in highly sensitive persons. It is also more marked when electrolysis is performed upon a patient who has had insufficient sleep or is fatigued from other causes. Excessive pain is experienced when too much current is used or when the needle pierces the skin or goes

through the hair follicle. Small ecchymotic areas and pigmentation may occur in some cases. In certain idiosyncratic individuals, tiny depigmented areas around the follicular openings may occur and in some, even tiny keloids may develop. It is important, therefore, that some time elapse between the first and second treatments so that the physician may have the opportunity of observing the results of the first treatment. It is also essential that the first treatment be a short one so that the patient can gradually become accustomed to the operation.

*Mistaken Diagnosis*—Many dermatologists have had brought to their attention, patients with malignant neoplasms who were treated for something else by electrolysis. There should be no difference of opinion among physicians as to the undesirability of lay operators without medical supervision using methods that may not only fail to cure the condition, but actually lead to serious sequels. Frequently basal cell epitheliomas may have the general appearance of a fibroma, a nonpigmented nevus, or even a pigmented nevus. Only a dermatologist is capable of diagnosing these conditions and sometimes the differential diagnosis is so difficult that it is necessary to remove tissue for a histologic examination. Suffice it to state here that surgical ionization is not the proper method for treating pigmented and non-pigmented basal cell epitheliomas. Even more serious than this, there are some pigmented lesions which are called benign melanomas. As long as they are not traumatized, they remain benign, but as soon as they are treated by such inadequate methods as electrolysis, they become malignant. Metastases to remote areas of the body occur and within a short time, death may ensue. Angiosarcomas have similarly been mistaken for benign moles with the same serious consequences. Lewis mentions the case of a patient with a syphilitic gumma which had been given several electrolysis treatments.

Electrolysis is far from being a safe procedure in unskilled hands. Careless-

ness and ignorance when applied to electrolysis may cause injuries to the skin which are objectionable, disfiguring, painful, and at times dangerous.

The best way to avoid these serious errors, in my opinion, is to place the responsibility of the treatment of all conditions amenable to electrolysis in the hands of the medical profession. Of equal importance is the change in attitude of many physicians. The tendency has been to ignore or give little attention to minor complaints. Sometimes patients were unable to obtain adequate advice and treatment from physicians and were forced to obtain help from nonmedical sources. Many minor conditions seriously interfere with the happiness of many patients. The attitude of the physician should be that of sympathy, interest, understanding, and toleration.

### Technic

The operator sits back of the patient in such a way as to provide a resting place for arms and hands. The light must be adequate, properly shaded, and easily adjustable. Artificial light is preferred to daylight. Magnification with Beebe binocular loupe is helpful in treating many small lesions and fine hairs. The patient may lie on a flat table at such a height as to be convenient for the operator. A special chair, somewhat similar in type to that used by barber shops may be used instead of a table. The operator sits on a swivel stool.

The apparatus employed by most dermatologists consists of a 22½-volt dry battery hooked up to an 'on' and 'off' switch, a rheostat, a milliamperemeter and two binding posts plainly marked 'positive' and 'negative'. The active electrode is the needle and is connected to the negative pole. The inactive electrode is the sponge and is connected to the positive pole.

The needle holder should be light and small and should grasp the needle firmly. Some dermatologists prefer to have the needle and the holder form a straight line. I prefer to have the needle a little

more than at right angles to the holder. A spring contact for making and breaking the current on the holder makes the holder a little larger and the operation a bit more awkward.

The type of needle most generally used is made of steel. I prefer the lightest and smallest needle obtainable. The point may be dull or sharp and preferably rounded. Some prefer platinum needles, others prefer needles that are partially insulated.

The epilating forceps should be light, flexible, with smooth grasping surfaces and should taper to a blunt point.

Very seldom is it necessary to employ more than one milliampere of current. The milliamperage ordinarily used varies between one quarter and one.

Before beginning treatment, the apparatus must be checked for polarity. This is done by attaching the needle to the negative pole, and the sponge to the positive pole. The two are then inserted in a vessel containing water. Around the needle, small bubbles will form and come to the surface of the water. This indicates correct polarity. If the needle and sponge were reversed this bubbling would not be noticed. Incorrect polarity causes iron tattoo marks.

There are numerous conditions that can be satisfactorily eradicated by electrolysis. The most important of these is hypertrichosis.

### Hypertrichosis (Hirsuties, Superfluous Hairs)

Excessive hair growth on the face, arms, legs, chest, and breasts of women make them so sensitive as to lead to a definite psychosis in some cases. It is seen in young and middle-aged women and most commonly in women of advancing years. There may be only a few hairs or the growth on the face may be as thick as that of a man's beard. The texture may be fine or coarse. The color varies with the complexion of the individual. The hair usually develops slowly. Hypertrichosis is not a simple disfigurement—not a matter of beauty, but an actual disease. It may be an

early symptom of a serious glandular condition. The physician should, therefore, perform the necessary tests to determine if possible the underlying cause of hirsuties. A lay "electrologist" is unfamiliar with these medical complications and may treat simply the disfigurement.

The cause for hypertrichosis is not clearly understood. In patients with this condition, examination often reveals other symptoms referable to the endocrines. There is no doubt that a definite endocrine dysfunction often exists. Hereditary tendencies are present which are also linked up with glandular abnormalities. Atavistic tendencies no doubt exist, but it is a little far-fetched to attribute this to the cause of hypertrichosis. I am not convinced at the present time that exposure to natural or artificial ultraviolet rays causes hypertrichosis, nor am I convinced that the applications of ordinary creams, ointments, or oils, to the face cause hair to grow or cause fine light lanugo hair to become thick, coarse, and pigmented.

Many methods have been used for the temporary and permanent removal of unwanted hair. Among these may be mentioned the chemical methods, employing salts of sulfur, the mechanical methods, employing tweezers, or wax and rosin mixtures, friction, employing pumice stone, radiation, employing x-rays, or radium either by name or disguised as a new scientific discovery, electrical methods, employing galvanism or high-frequency coagulating currents. Time does not permit a detailed discussion of all these methods. I should like to emphasize, however, that the removal of superfluous hair by x-rays or radium regardless of the technic employed is frequently accompanied by considerable danger. If enough x-rays are used to permanently destroy hair follicles, then enough x-rays have been absorbed by the upper layers of the skin to show irradiation sequels at some future date. These sequels are dangerous. They often lead to deformity, to the development of keratoses and cutaneous cancer. It is

possible that a cancer so induced may be accompanied by metastases to vital organs and may cause death.

The chemical, mechanical, and friction methods are useful for temporary removal of hair. The razor and the electric shaver are also used for this purpose. The electrical methods remove hair permanently. Coagulation has not been used sufficiently long to evaluate results. So far as my personal experience goes, coagulation is as painful as electrolysis, is not faster than electrolysis, and results in pitting and scarring. Also coagulation is not extensively used or widely recommended by dermatologists. It is possible that high frequency apparatus may be so improved as to replace electrolysis for the treatment of hirsuties.

Electrolysis is, therefore, the only method available at the present time that would remove hair safely, satisfactorily, permanently, and without scarring.

*Operation*—The patient and the operator get in proper position. The light is adjusted. The area to be treated is first washed with soap and water, then it is cleansed with benzine or carbon tetrachloride to remove all fatty substances. The area is then dried with sterile gauze and alcohol is applied. The operator's hands are thoroughly scrubbed with soap and water and rinsed with alcohol. The needle is sterilized and attached to the negative terminal. The needle holder must be clean. The patient holds in the palm of her hand the wet sponge which is attached to the positive terminal. A clean or sterile towel is put over the eyes of the patient. In my experience, I have not found it necessary to break the current while inserting the needle in the hair follicle. For the novice, this is a good thing to do because it minimizes pain.

The needle is now inserted into the follicle, using the hair as a guide. By delicate manipulation the course and depth of the follicle are easily and quickly found. The needle is held in place by the right hand. No more than

one milliampere of current is used nor is the time greater than one minute. After a few seconds, the hair is grasped by the forceps held in the left hand. Very gentle traction is applied. This is repeated until the hair slides out of the follicle easily. The needle is then withdrawn. The process is repeated. Contiguous hairs must not be removed—perhaps not more than three or four hairs should be removed from a dime-sized area. Dimpling of the skin, resistance, edema, delayed appearance of the foam at the surface, and excessive pain indicate improper insertion of the needle. Experience and development of a fine sense of touch will tell the operator when he has reached the bottom of the follicle.

After the treatment, the skin is swabbed with alcohol, dried and calamine lotion with 1 per cent phenol is applied. Occasionally a mild lotio alba will prevent the formation of pustules.

To obtain good cosmetic results, the operator should observe the following rules:

1. Hairs should not be removed from inflamed areas.

2. A test treatment should be given to ascertain the toleration of the skin of various parts and of the patient.

3. Use a mild current and when removing hairs from the upper lip a milder current should be used.

4. Contiguous hairs should not be removed at one sitting.

5. Do not leave the needle in the follicle longer than is absolutely necessary.

6. The needle must pass through the orifice of the follicle and it must be in or very close to the hair bulb.

7. It is necessary that the parts to be treated should be cleansed first with soap and water and then with alcohol. After the treatment the patient should use an antiseptic shake lotion for twenty-four or forty-eight hours.

The advantages claimed for the multiple needles are not tenable in my opinion. It is exceedingly difficult to control one needle properly. One can easily understand how much more difficult it would

be to operate twelve needles at the same time. The result is that needles are inserted in the skin and not into the follicles. It is doubtful if more hairs are removed in a given period of time by the multiple needle method than by the single needle.

For some fine hairs and for some lesions, I prefer a sharp pointed needle—otherwise, for routine work I use a blunt-pointed needle. The insulated needle may cause less pain in treating thick, coarse hairs, but cannot be used satisfactorily for fine hairs and for certain cutaneous lesions.

The technic of electrolysis can be mastered by most students. Some may be unsuited for this work because of temperament, poor eyesight, tremor, or other physical defect. The work is exceedingly tedious, very difficult, and is a strain both physically and mentally.

Anesthesia is not required for electrolysis. Various skin anesthetics are ineffectual. The discomfort after the first few treatments is really very slight. Most patients soon get used to the treatments.

### Nevi

Certain nevi respond well to electrolysis. One must be able to differentiate benign moles from those that may be actuated into malignant neoplasms by trauma. Ordinary skin colored or brown moles containing hair and present since birth are benign as a rule. The smooth, hairless, slate or blue-black moles or moles appearing in adult life are potentially dangerous and should not be treated by electrolysis. The ordinary small pigmented hairy nevus may be best removed by electrolysis. After the hair is removed in the manner described above, then what remains of the mole is treated by cross insertions of the needle. At first the needle is inserted through the center of the lesion holding it parallel to the skin, and above its level. Several insertions parallel to the first are made and when the lesion is entirely covered, insertions at right angles to the first are made. During this whole procedure the

needle is charged. For larger lesions one milliampere of current is used and for smaller lesions  $\frac{3}{4}$  of a milliampere is sufficient. The lesion is not destroyed completely at one sitting. The average mole requires three or four treatments. They are given at weekly or bimonthly intervals. It must be emphasized that successive treatments are given only after the reaction from the previous treatment subsides.

*Dilated Capillaries*—Spider nevi are quickly cured by electrolysis. The needle is placed in the center of the lesion and is allowed to stay in place for about one minute. At the end of this time, the area appears slightly edematous and blanched, having the appearance of a hive following an insect bite.

The telangiectatic vessels in rosacea may be destroyed by vertical insertions of the needle in several places along the course of the vessel. Single insertions are required for small vessels.

Telangiectases following overexposure to radium or x-rays can be destroyed by electrolysis. One must be careful of how the treatment is applied. Energetic treatment may result in the breaking down of radiodermatitic tissue with ulcer formation. One must also be careful not to treat a keratosis or an early prickle cell epithelioma by this method. As these vessels are extremely superficial, the needle is only slightly inserted.

*Verrucae*—The small common wart, venereal warts, flat warts, filiform, and digitate warts can be permanently and completely destroyed by electrolysis. Slightly raised lesions are treated by vertical insertions, whereas, larger lesions are treated by criss-cross insertion (transfixation).

*Keratoses*—Senile and seborrheic keratoses are occasionally treated by elec-

trollysis. The small, slightly elevated lesions are treated by vertical insertions, whereas the larger lesions are transfixed.

*Benign New Growths*—In this group are included the following uncommon diseases: adenoma sebaceum, sebaceous adenoma, multiple benign cystic epithelioma, trichoepithelioma, syringocystadenoma and hydrocystoma. These growths are often cured by treatment with electrolysis. The needle may be inserted vertically or if the lesions are sufficiently raised they may be transfixed.

In conclusion, I wish to point out that electrolysis or surgical ionization is a valuable agent for the treatment of many conditions. It is the only agent that will safely and adequately cure the disease, hypertrichosis. I have mentioned how carelessness, inexperience, and ignorance have caused undesirable injuries to the skin and other serious consequences. The operator must have at least an elementary knowledge of the anatomy of the skin, of bacteriology, of antisepsis, of tissue tolerance to trauma, of the chemical reactions involved in electrolysis, of the physics and mechanics of the apparatus used. He must know especially how to differentiate benign lesions amenable to electrolytic treatment from malignant and potentially dangerous lesions which they simulate. It is obvious that this modality can be properly used only by physicians qualified by training and experience or under their direct supervision.

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It is stated that on any one day nearly 1 per cent of all the people in this country, actually 1,300,000 people, are incapacitated by epilepsy, feeble-mindedness, and various types of mental illness.

Rochester had no diphtheria deaths in 1935-1938, and Utica none in 1934-1938. Albany, Syracuse, and Yonkers had none in 1938.

Utica had no typhoid deaths in 1936-1938, and Buffalo none in 1938.

# THE VALUE OF IRRADIATION IN CANCER OF THE BREAST

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THE general principle underlying treatment of cancer of the breast has not changed in the past three thousand years. That principle is the complete removal of the tumor or its destruction *in situ* by physical means. The earliest records of the Egyptians and Persians contain descriptions of the successful treatment of cancer of the breast by scalpel and cautery. Before the discovery of the microscope and the development of modern histology, surgeons had realized the necessity for the radical removal or destruction of a cancer, together with the regional metastases. When anatomic studies revealed the lymphatic drainage system of the breast, knowledge of its avenues of spread was clarified. Based on these studies, the operation of radical mastectomy was devised and described almost simultaneously by Willy Meyer and by Halsted. By this procedure, more than forty years ago, the cure rate of cancer of the breast was doubled over what it had been when operation was restricted to removal of the breast itself. Thus was demonstrated the clinical fact that it is possible in a high percentage of cases to dissect successfully the axillary contents and achieve permanent cures after these nodes have been involved by cancer.

Until the development of radiation therapy, surgery of this radical type constituted the only treatment that promised any success. For years surgeons, no less than internists, had hoped that the day might come when such mutilating procedures would no longer be mandatory in the cure of malignant disease. With the discovery of the roentgen ray and radium, it was hoped that a means had at last been found that would eliminate surgery in the treatment of cancer of the breast.

These new physical agents were hailed as the great panaceas in the treatment of neoplastic disease, and enthusiasm greeted their introduction into the field of cancer therapy. Disappointment soon followed and surgeons, particularly, developed a pessimistic attitude toward the value of irradiation in the treatment of cancer. For many years radiation methods languished, the percentage of cures remained small. During the past fifteen years, however, considerable strides have been made in this field. Development of the use of radon in the form of gold filtered seeds, and highly filtered radium in the form of platinum needles and capsules, together with the realization of the importance of the time factor in protracted, fractionated courses of therapy, have yielded a gratifying increase in the percentage of cures, particularly in the treatment of intraoral cancer.

Early attempts to apply these methods to the treatment of cancer of the breast showed little success. In recent years, by the administration of increased doses of roentgen ray, and by the employment of interstitial sources of radiation, such as gold seeds and needles, it has been possible to obtain about 45 per cent of five-year cures of cancer of the breast where the disease was still limited to a small tumor within the breast. In the treatment of metastatic disease of the axilla by irradiation, five-year cures of definitely proved metastatic disease are exceedingly rare.

## Effectiveness of Radical Surgery

The results of surgical treatment of cancer of the breast have been thoroughly studied, and are so good that I believe they should be emphasized to combat the pessimism prevailing among physicians

and surgeons By surgical methods alone, by which is meant the performance of a careful, painstaking, meticulous, anatomic dissection, one may expect to achieve from 35 to 45 per cent of five-year cures on all cases that are not considered to be too far advanced for radical mastectomy This procedure has a high percentage of efficiency in successfully removing all evidence of axillary disease This is shown not only by the fact that from 20 to 25 per cent of five-year cures are obtained even after the disease has spread to the axilla, but also by the fact that in the 75 per cent of cases in which the disease has spread beyond the axilla to form distant metastases in the lungs, bones, and liver, it is exceptionally rare for axillary recurrence ever to develop during the remaining life of the patient Thus, we see that the surgical technic of cleaning out the axilla has been so well perfected that it can be depended upon to remove the disease from this region in its entirety

### Effectiveness of a Combination of External and Interstitial Irradiation

As I have said, a combination of external and interstitial radiation will cure cancer limited to the breast itself in 45 per cent of cases It thus fails to cure 55 per cent of such cases, even though the disease is still limited to the breast and completely accessible to treatment In this select group of cases of cancer localized to the breast, a simple mastectomy will cure every one, so that radiation is distinctly inferior to surgery in this situation and cannot, therefore, be regarded in any way as a substitute

The comparison is still more striking when one considers the results of treating patients in whom the disease has involved the axillary nodes As an experiment to determine this point at the Memorial Hospital for Cancer and Allied Diseases, New York City,<sup>1</sup> seven years ago, a large group of patients with primary operable carcinoma of the breast were treated by radiation In a little more than half of these patients it soon became apparent that radiation was failing to

control the disease, and radical mastectomy was resorted to

Of the remaining 47 patients in whom x-ray and radium alone were employed, there were 23 five-year survivals when the disease was confined to the breast. This figure should be contrasted with the 72 per cent of five-year survivals when surgery was combined with postoperative irradiation In the 53 cases in which both the breast and the axilla were involved, not a single five-year cure was obtained by radiation methods

On the basis of this work, which was most carefully conducted, it appears to be true that surgery can be depended upon to cure 3 out of 4 cases of cancer of the breast if the axilla is not yet involved, and 1 out of 4 cases even after it has become invaded Since three quarters of the patients who seek medical advice with cancer of the breast present obvious metastases to the axilla at the time of the first visit, radiation therapy of this combined type could be applicable only to one fourth of this number or to those in which the axilla was not yet involved, and here it could be expected to provide only 45 per cent of cures in a specially selected group of early cases with limited disease Thus, out of 100 patients with cancer of the breast presenting themselves at a hospital for treatment, only 10 or 12 individuals could be cured of their disease by irradiation alone

In the face of such evidence there is no basis for the assumption that irradiation is a satisfactory substitute for careful, meticulous cancer surgery This, however, is not to deny that irradiation may be of value as an adjunct to surgery

### Theoretic Advantages of Preoperative Irradiation

Theoretic considerations suggesting that preoperative administration of roentgen therapy might be a valuable adjunct to surgery are the following

- 1 Patients who die from cancer of the breast usually do so because of distant metastases, rather than from the effects of the local disease,

- 2 If metastases are not already

present at the time of operation, the manipulations incident to the operation may dislodge cancer cells and disseminate them throughout the body,

3 If these cells could be devitalized by preoperative x ray therapy such distant metastases might be prevented,

4 The more highly malignant the cancer cell, the more likely it is to metastasize early. As indicated in the statistics of the Mayo Clinic, reported by Harrington, 91.4 per cent of the group having invasion of the lymph nodes had cancer of microscopic grades 3 and 4.

5 Grades 3 and 4 carcinomas are more likely to be radiosensitive than are the lower grades of malignancy,

6 These tumors of relatively high grade malignancy may be rendered less malignant by moderate doses of roentgen rays administered prior to operation,

7 Normal tissues are less receptive to implantation after preoperative irradiation, therefore, preoperative irradiation may be expected to prevent or reduce the likelihood of local recurrences.

### Disadvantages of Preoperative Irradiation

The disadvantages of preoperative roentgen therapy are the following:

1 The average carcinoma of the breast is a radioresistant tumor requiring for its destruction from six to twelve erythema doses of irradiation. This is three to four times the tolerance of the skin and cannot be administered by any technic so far devised.

2 Administration of roentgen therapy to the limit of skin tolerance enforces a delay of eight to twelve weeks before it is safe to attempt the operative removal of the breast and regional nodes.

3 Severe radiation reactions result, and ulceration is frequent, often requiring a long period of waiting before the operation may be attempted,

4 The healing of the wound is interfered with in at least 25 per cent of cases, varying from necrosis of wound edges and separation of skin flaps to severe wound infections, with increased morbidity and mortality,

5 The underlying thoracic structures may be damaged, producing late changes, such as fibrosis of lungs and cardiac muscle. These conditions produce distressing symptoms of cough, pain in the chest, mediastinal swing, dyspnea, and anemia,

6 The enforced delay of two to three months permits the further extension of the disease in the radioresistant majority of carcinomas of the breast, so that some patients may lose whatever chance of cure they had prior to treatment by roentgen rays,

7 There is no statistical evidence definitely proving that preoperative roentgen therapy increases the percentage of five year cures.

### Unreliability of Statistics

The usual attempt to determine the value of preoperative roentgen therapy falls short of the statistical ideal. The case for radiation therapy is often argued by contrasting the results of poor surgery with those of good surgery preceded by irradiation therapy, by calculating the average five year cure rate from twenty or thirty surgical clinics in which the extremes may vary by as much as 300 per cent, thus arriving at a low average of five year cures, and then contrasting this figure with that obtained in a small group of cases treated by a single outstanding surgeon and an equally excellent radiologist. These studies contain examples of every statistical fallacy, among which may be noted:

1 Intentional or unintentional selection of cases,

2 Use of small numbers of cases, so that the inclusion or exclusion of one or two cases makes an impressive difference in the calculated percentages,

3 Calculation of averages from cases showing extremely wide variation,

4 Grouping of cases without reference to the stage of the disease or the type of carcinoma,

5 Comparison of the results of one combination of treatments (preoperative irradiation plus surgery) with surgery by an entirely different group of operators.



with an unclassified group of patients

To eliminate these gross statistical errors and arrive at an honest appraisal of the value of preoperative irradiation in the treatment of carcinoma of the breast, a careful study has been made during the past five years at the Memorial Hospital for Cancer and Allied Diseases, New York City, by Adair<sup>2</sup> and his associates

Primarily operable cases of carcinoma of the breast were divided into two nearly equal groups, one of which was treated by surgery and the other by pre- and postoperative irradiation and surgery. From time to time studies on these cases have been reported by Adair and others,<sup>3</sup> and these constitute an unusually valuable contribution to the treatment of carcinoma of the breast. The results have been frankly reported and speak for themselves.

The patients were treated by daily divided doses of roentgen therapy, cross-firing the breast and axillary structures through five ports. The total dose per port ranged from 1,200 to 3,000 roentgens. The present dosage ranges from 2,100 to 3,000 roentgens per port. With this higher dosage, which is the absolute limit of skin tolerance, operation has had to be postponed an average of sixty-six days and in many cases much longer, the extremes being as great as three hundred days. Radical mastectomies were then performed on these patients and the specimens carefully examined and classified according to the degree of destruction wrought by the roentgen ray.

### Effectiveness of Roentgen Ray in Destroying Tumor of Breast

Of a total of 65 cases so treated by roentgen radiation, the primary tumor of the breast was found to have apparently disappeared in 14 (21.5 per cent). In those cases that received 1,800 r per port, the breast cancer disappeared in 35 per cent, and in those that received 2,400 r per port, the apparent effectiveness of the roentgen ray in destroying the breast tumor was 50 per cent.

### Effectiveness of Roentgen Ray in Destroying Axillary Metastases

In the cases of involved nodes of the axilla, the effectiveness of roentgen irradiation was decidedly less. In only 3 cases, or 7.7 per cent, of the 39 cases with involved nodes treated by roentgen rays was there apparently complete microscopic disappearance. Out of a small group of 9 cases with metastatic disease of the axilla treated by administration of 1,800 r through each of three ports, there were 2 cases in which the pathologist failed to find any evidence of viable cancer. If one were justified in attaching much importance to a series of only 2 apparently successful cases, a possible efficiency of 22.5 per cent might be claimed, provided that one could be certain that these nodes had previously been actually invaded. In consideration of these facts, Adair concluded that "external irradiation as delivered by our technic is not a great success in curing axillary nodes."

This is a conservative statement of failure, because

- 1 There is no proof in these 3 cases in which no cancer was found postoperatively, that the nodes ever had been involved,

- 2 The clinical diagnosis of enlarged axillary nodes has an error of 25 per cent in Adair's clinic, equally divided between false positives and false negatives. Applying this factor to the 39 cases clinically diagnosed as involved by cancer, the expected erroneous percentage of false positives would have applied to at least 4 cases, more than enough to discard the 3 cases mentioned,

- 3 After a breast and axilla have been so thoroughly irradiated, the pathologist has great difficulty in locating the nodes and in selecting his specimen, and thus may completely overlook fully stainable and viable cancer cells, so that a statement that no cancer cells were found does not mean that none actually were present. It is simply negative evidence comparable to that of any other negative biopsy.

### Danger of Delay

It should be remembered in evaluating the worth of preoperative roentgen therapy that the apparent eradication of axillary disease in these 3 cases was achieved by subjecting 30 patients to long courses of roentgen therapy and postponing their operations from twelve to three hundred days after the administration of their last x ray treatment. The delay in the whole group averaged sixty six days. How many of these patients developed distant metastases during this waiting period and thus lost their chance of cure cannot be estimated. It would seem reasonable to assume that the number who lost their lives by delay would be larger than any additional salvage attained by the benefits of the radiation therapy. One may, therefore, conclude that radiation methods are still distinctly inferior to surgery in the treatment of a primary operable carcinoma of the breast, and cannot be depended upon to provide any cures where the disease has extended to the axilla.

### Comparison of Results of Cases Treated by Surgery with Those Treated by Pre- and Postoperative Irradiation and Surgery

Five-year end results of Adair's material will not be available until December, 1939. At the present time, however, the four-year end results may be quoted, since they were presented by Adair before the New York Academy of Medicine on January 21, 1939. The figures follow:

Treatment	Percentage 5-Year Cures	Percentage 4 Year Cures
Surgery alone	40.6	
Pre and Post operative ir- radiation and surgery		45

From this it is seen that the four year cure rate of those cases treated by pre- and postoperative irradiation and surgery is only 4.4 per cent better than the five year cure rate by surgery alone. The normal expected reduction in cure rate, occasioned by the death of the patients or recurrence of the disease

in their fifth year postoperatively, is 10 per cent. Ten per cent of 45 is 4.5. When this is subtracted from 45 per cent to find the expected five year cure rate, the result is 40.5 per cent, which is actually one tenth of 1 per cent less than the cure rate by surgery alone.

It thus appears that there is no reliable statistical evidence that preoperative irradiation of carcinoma of the breast increases the five-year cure rate. On the contrary, it is clear that any theoretic benefits are cancelled out by the deaths that occur by reason of the enforced delay before operation can be performed. Further serious objections are those already mentioned: painful, ulcerative radiation reactions, delayed healing, postoperative infections, necrosis of wound edges, longer hospital stay, higher morbidity and mortality, and the later development of pulmonary fibrosis, cough, mediastinal shift, anemia, and cardiac damage.

### Postoperative Roentgen Therapy

If this be true, the question may then be asked: "Has radiation therapy any value in the treatment of cancer of the breast?" If preoperative external radiation therapy is powerless to produce five-year cures where the axillary nodes are involved, of what use is it postoperatively in the prevention of recurrences? The answer to these questions, in all fairness, cannot be a flat assertion that radiation therapy has no value at all. The first admission that must be made is that Adair has shown that high dosage of x rays can be tolerated by these tissues, and it may well be that when such doses are employed postoperatively an improvement in the five year end results may be noted.

The effects of radiation therapy are featured histologically by two phenomena. There occurs, first, the active destruction of the cancer cell, and, second, the sclerosis of blood vessels leading to a fibrosis of the irradiated area. This latter effect is of great importance because such fibrosis often is sufficient to prevent the spread of the cancer cells that may still

be present In this connection, I have had an opportunity to examine specimens from 17 cases of cancer of the breast, apparently successfully treated by interstitial radiation In all of these 17 cases, the tumor was replaced by a dense mass of fibrous tissue, notable for its poverty of blood vessels and lymphatics, but scattered throughout this tissue, in every case, there were small clumps of cells still recognizable as cancer Yet all of these cases had been well for periods ranging from three to eight and one-half years It is probable that at the present time, and with our present technic, the fibrosis that we are able to produce in the axilla by means of heavy doses of roentgen therapy, may, in a certain small percentage of cases, be effective in producing some degree of growth restraint Portmann<sup>4</sup> believes that 10 per cent of his patients who received postoperative roentgen therapy averaged one year longer life

#### **Palliative Value of Roentgen Therapy**

The palliative value of roentgen therapy in extensive, inoperable carcinomas of the breast, and in recurrences and bony metastases is so well established that one need not discuss it here Arrests of disease for many months and even years are not unusual When all other methods have failed, radiation therapy often provides a degree of comfort obtainable by no other means Foul, ulcerated masses may become shrunken and clean, recurrences may be locally controlled, and the pain of bone metastases completely eliminated Pathologic fractures may be made to unite, and the last months of life made bearable by the benefits of roentgen therapy

#### **Surgical Treatment of Cancer of the Breast**

Any survey of the surgical literature of cancer of the breast reveals an astonishing attitude on the part of many surgeons Members of a profession which can point to 40 to 45 per cent of five-year cures of operable cancers of the breast, they frequently are not aware of how good these results really are Occasional surgical

writers appear to be overawed by the optimistic radiologic literature and exhibit a humility heretofore unusual in a surgeon The surgeon seems to apologize for his ancient armament, the thumb forceps, the scalpel, the cautery His radiologic ally seems so much more scientifically equipped with electrons, neutrons, superhigh voltages, and alpha, beta, and gamma rays He speaks a language unintelligible to the surgeon, and exhibits an optimism that the surgeon not only cannot share, but must certainly envy

#### **Feasibility of Axillary Dissection**

Because the anatomy of the axilla affords excellent exposure and relatively clear-cut planes of cleavage, it is possible by a well-planned, meticulous dissection to remove cleanly all evidence of cancer in a high percentage of cases What this percentage actually is cannot be specifically stated but can be indicated by the fact that local axillary recurrence is exceptionally rare following such an operation In the follow-up clinics of three large hospitals, I have not seen a single instance of axillary recurrence in the past three years The usual course of a patient treated by such painstaking, thorough axillary dissection, is either complete freedom from disease, or death at some later date from distant metastases In this latter event we must conclude that the metastases were given off by the primary tumor before its operative removal, since after the operation there is left no detectable residual tumor to provide such metastases In any case, the axilla, regardless of what is occurring in the rest of the body, usually remains free of disease This latter fact is of tremendous significance, since it indicates that if no distant metastases have already occurred, one may confidently expect to effect a cure by an operation that appears to be adequate for the removal of the axillary deposits

#### **Results of Radical Surgery Alone**

The results reported by Eggers<sup>5</sup> illustrate what may be expected from radical,

painstaking surgery His material consisted of 80 consecutive cases of carcinoma of the breast. The group comprised all cases in which the tumor seemed removable. Included among them were examples of ulcerative lesions, bilateral carcinoma, and, at times, cases of supraclavicular involvement Fifty four (67.5 per cent) of these 80 patients had lymph node involvement Thirty five lived five years or longer, a cure rate of 43.8 per cent. Of those with lymph node involvement, 18, or 33.3 per cent, lived more than five years Of the 26 who had no lymph node involvement, 17 lived more than five years, a cure rate, in early cases, of 65.4 per cent. Five patients had bilateral involvement and had bilateral radical mastectomy All of them survived the five year period, although 3 of them had lymph node involvement. None of these patients received any roentgen therapy preoperatively, and only 1 of the 80 patients had postoperative roentgen therapy

Thus it is that representative clinics throughout the United States report from 35 to 45 per cent of five year cures on all cases treated by surgery alone If however, one calculates the percentage of five-year survival on all patients in the United States operated on for cancer of the breast, the figures appear to be somewhat less than 10 per cent. There is, thus, a fourfold difference between the results obtained by the average hospital and those reported from the larger centers

### Technic of Radical Mastectomy

This type of cancer surgery cannot be hurried It should follow a definite plan The incision should run from the insertion of the pectoralis major to the umbilicus A wide area of skin must be sacrificed, the skin flaps should be thinly dissected medially as far as the sternum, and laterally to the latissimus dorsi The operation should proceed methodically from above downward in a regular, orderly procedure. The entire pectoralis major and minor should be removed The dissection should start

at the cephalic vein and be carried down over the brachial plexus so as to include, in one continuous sheet, the fascia surrounding the axillary vein and the entire axillary contents, leaving behind only the long thoracic and subscapular nerves A continuous specimen should be dissected off the chest wall, including the fascia over the intercostal muscles, and the anterior sheath of the rectus muscle In this operation the surgeon never lays down his knife, and all steps of the operation are accomplished by sharp dissection The operation requires from two to three hours This type of cancer surgery can not be done in a hurry or by a pessimist. Any surgeon who is convinced from the start that his efforts to remove a cancer are foredoomed to failure is likely to content himself with a half hearted incomplete operation that affords the patient no permanent benefit The cancer surgeon should approach his task with a clear knowledge of what results may be expected from the procedure that he is about to attempt. Secure in the faith that relentless, bold, and meticulous surgery holds out substantial hope of cure for the patient, the surgeon will disregard all other considerations in the accomplishment of his surgical ideal The benefits of such surgery need not be purchased at the price of an increased operative risk The mortality from radical mastectomy is less than 1 per cent The record of surgery in cancer of the breast stands among the most successful of all regional surgery At the present time, that 60 per cent of patients who are not cured is composed of (1) those in whom distant metastases have already occurred, (2) a very small percentage who develop local recurrences, and (3) those whose local disease is too far advanced for operative removal Hope for the future, therefore, clearly depends on earlier operations before these distant metastases have occurred An earlier operation depends upon early diagnosis an ideal that can only be achieved by educating the public to the early signs of cancer of the breast and the necessity to seek medical advice as soon as possible,

upon the alertness of our own profession to recognize this disease in its early stages and to treat it by the bold, relentless, and meticulous surgery which has already yielded such excellent results

### Summary

Examination of available evidence indicates that preoperative irradiation of carcinoma of the breast does not increase the five-year cure rate

It has, moreover, certain disadvantages. Two to three months must elapse before it is safe to attempt a radical removal of the breast and axillary nodes. This delay may deprive the patient of her chance of cure by permitting further spread of the disease.

The majority of breast cancers are radioresistant and cannot be completely destroyed by any dosage of external radiation which can be tolerated by the intact skin. It is rarely possible to eradicate carcinoma of the breast by means of external radiation when it has metastasized to the axillary lymph nodes.

Wound healing is frequently impaired. Mortality is moderately increased. The contents of the thorax may be damaged. Fibrosis of the lung may occur as a sequel to intensive irradiation of the breast. Tangential irradiation is impractical in small breasts closely applied to the chest wall.

Radiation methods are distinctly inferior to surgery in the treatment of

primary operable carcinoma of the breast, and cannot be depended upon to provide any cures where the disease has extended to the axilla.

There is, therefore, no justification for the abandonment of radical mastectomy as the treatment of choice, a simple mastectomy followed by postoperative irradiation of the axilla is inadequate and deprives the majority of patients of their chance of cure by careful axillary dissection.

The cure rate by meticulous, radical surgery is fully as high as that obtained by the addition of preoperative and postoperative external irradiation. External radiation is no substitute for meticulous, painstaking, radical surgery, and cannot be expected to transform a primary inoperable carcinoma of the breast into one that would be curable.

External radiation has a real value as a palliative measure in advanced, inoperable cases of carcinoma of the breast, in local recurrences, and in cases of acute inflammatory carcinoma of the breast.

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### MORE BOY BABIES IN POST-WAR YEARS—WHY?

Following a long war a definite increase in the proportion of male births has repeatedly been observed. This was, for example, the experience of nearly all of the principal European countries engaged in the World War.

Various theories have been advanced but few stand analysis, remarks the *Statistical Bulletin* of the Metropolitan Life Insurance Company. Nearly 200 years ago the theologian, Johann Süssmilch, ascribed it to the interposition of Divine Providence in compensation for the great slaughter of male lives in battle.

Since then various theories have been advanced. According to one of these, poorly nourished women give birth to a greater proportion of boys and malnutrition of mothers in post-war years causes a rise in the ratio of boy babies. In support is cited the high ratio of male births in Germany during the famine years of 1918-1919. But a similar rise, although of lesser de-

gree, occurred in most of the allied nations after the War, despite the fact that food shortage and malnutrition were relatively slight in these countries. If malnutrition in the mother favors the male fetus, we should expect to find the same high ratio of male births in the wake of great famines. Careful research has failed to discover any such effect in connection with the terrible periodic famines in India.

Other conjectures, more or less ingenious, have been advanced. Among these, the one that commends itself as most plausible relates the increased ratio of male births to the increased proportion of first births occurring as the result of the consummation of marriages postponed by men called to the front.

All in all, the facts are perplexing. It cannot be said that the problem is solved. The increase in male births after wars is an established fact. Its explanation remains a mystery.

## CIRCULATION OF THE JOINTS OF CHRONIC ARTHRITIS

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THE treatment of chronic arthritis is one of the most difficult problems with which the physician has to deal. Some doctors are inclined to try each and every new remedy that is offered by the pharmaceutical houses or each new piece of apparatus that is put out by the manufacturers. Others continue to use some pet remedy that they have used for years on each and every case, regardless of the type of arthritis or the stage of the disease.

The physician who does not individualize his case of chronic arthritis does not render that patient adequate treatment. Whether he be a physiotherapist, a "rheumatism specialist," or other practitioner, he is not treating his arthritics well if he does not regard each as a special problem. Not only does each patient with chronic arthritis require a special prescription, but he also requires different treatment as he progresses or retrogresses during the course of his disease. In the more acute stages, rest in bed, antipyretics and other drugs, dietary and hygienic regulations, as well as immobilization, local application of anodynes, and possibly aspiration of the joints are used. Each case of chronic arthritis must be studied completely and classified as to whether it is of the rheumatoid or of the osteoarthritic type. In the former, a thorough search must be made for possible foci of infection, and such foci removed if they are found. Endocrine imbalance and vitamin lack should be corrected, dietary errors remedied, anemia treated, vaccines used when they seem indicated, splints provided to prevent deformity, etc. In the hypertrophic form, weight reduction is usually necessary, as are periods of enforced rest, postural correction, proper bracing of the feet, and other measures. In addition, in both types

surgical procedures, such as arthrotomy, synovectomy, manipulation under anesthesia, or tenotomy may be useful.

Some form of physical therapy is indicated throughout the course of the disease. The modalities used will depend upon the experience and preference of the one giving the treatment. Heat, massage, and manipulation are usually the basis of this treatment. Contrast baths and other forms of hydrotherapy may also be indicated, ultraviolet light when a tonic is necessary in the undernourished and anemic, colonic irrigations, fever therapy, especially in the gonorrheal infections, and graded exercises all have their places. Sometimes mecholyl and histamine iontophoresis, and galvanic, sinusoidal, or faradic stimulations may be used. While all these latter modalities have their places, it is some form of heat that is undoubtedly the most important, the most easily applied, and often the most economical for the patient. This may be achieved by a general body heating by means of a short wave apparatus, hot tub, full wet pack, heating cabinet, or other device, or possibly through local heating by means of a short wave, heat lamp, baker, paraffin bath, or a simple home device such as hot water bottle, electric pad, or hot iron. Heat relieves the pain because it depresses the sensory nerve endings. It also improves the circulation because it has the power of causing vasodilatation. By this means, the nutrition of the part is improved, the cellular activity increased, and phagocytosis stimulated. Sweating is also increased and the elimination of lactic acid and other wastes hastened. Possibly, also, heat hastens the softening of scar tissue and the breaking down of adhesions, especially when it is associated with massage and manipulation.

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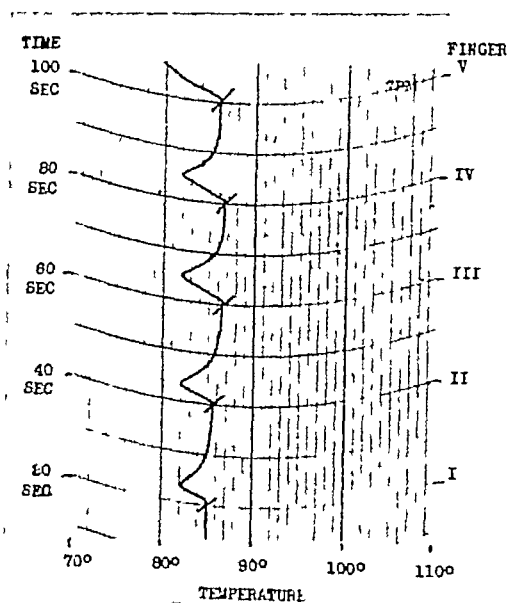


FIG 1 A typical tracing of the temperatures of the fingers of one hand by the photoelectric recording thermometer. The paper travels from above, downward, and the junction is in contact with the skin for fifteen seconds and off for five seconds

There is a difference of opinion as to which is the most efficient form of applying heat, often whether the entire body or simply the affected joint should be treated, also, whether heat should be applied during the entire course of the disease or not. Krusen<sup>1</sup> feels that heat may be applied to a joint that is acutely inflamed, or during an acute exacerbation where the circulation is already increased, and insists that additional heat will further aid the body in its fight against the disease. Others advocate the avoidance of heat at this time. Realizing the fact that the use of heat alone is only a small part of the treatment of arthritis but nevertheless a very important part of that treatment, and because of the difference of opinion as to when and how it should be applied, it has seemed desirable to make some studies on the circulation of the joints in arthritis in an effort to find out more about how it is influenced by heating. We have available an experimental photoelectric recording thermometer and an experimental photoelectric recording plethysmograph.

The thermometer is of the thermo-

couple type and records constantly. It is essential for accurate recording to allow the proper length of time for the contact of the junction with the skin, and also sufficient rest time. This may be done accurately with this instrument, as the recording roll travels at a constant speed and it is not necessary to consult a watch.

We have found it accurate within a few tenths of a degree to allow fifteen seconds contact of the junction with the finger and to allow a five-second rest period. A tracing of a typical temperature recording for the five fingers of one hand is shown (Fig 1). The magnitude of the plethysmograph oscillations are purely arbitrary and depend upon the amplification adjustment of the apparatus. It is possible to calibrate it so that the changes in finger volume may be measured to within 0.03 cc (Fig 2). The change in the amount of blood in the finger is dependent first of all on the heart beat but usually there is also a change with the respiration. This plethysmograph has been described by Martin and Marcellus.<sup>2</sup>

We desire to compare the value of the plethysmograph and the skin thermometer in the measuring of the circulation in a part. It would seem that the plethysmograph should give a more accurate measurement of the circulation, as it records the changes in volume and thus measures the amount of blood that enters the part. The skin temperature, on the other hand, is quickly influenced by room temperature, air currents, and the amount of perspiration on the skin. A finger with a very good circulation placed in a relatively cold environment would continue to have a good circulation, yet the skin temperature might drop markedly (Fig 3, see page 1492).

We realize that we are measuring the skin temperatures and the volume changes in the entire finger and so estimating the circulation in the finger including the joints and not in the joints alone. But if the circulation in the entire finger increases, the circulation in the joint will also increase, and if it decreases the joint circulation will also decrease. And, since

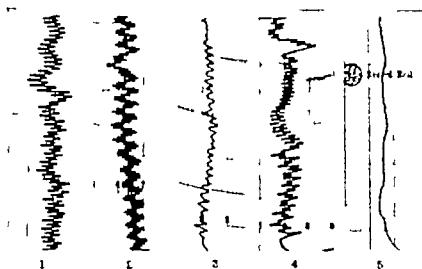


FIG 2 Oscillations of the finger plethysmograph. The width of the oscillation varies directly with the change in finger volume, which is influenced by both the pulse and the respiration. 1 Case showing volume changes which follow the pulse for the most part. 2 Regular changes with respiration as well as pulse. 3 Case showing volume changes with respiration almost exclusively. 4 Lower half of tracing shows changes with pulse and respiration while the upper half shows no respiratory waves as the patient holds his breath. 5 Very little circulation in the extremity with small pulse waves and no respiratory waves.

the method is suitable for clinical use, it is regarded as an accurate gage of the circulation within the joint.

We also realize that the fingers do not react the same way to heating that some of the larger joints do, as the fingers are the seat of the peripheral reflex dilatation. But often, especially in chronic rheumatoid arthritis, it is the fingers that are especially troublesome, and information obtained regarding their reaction to heat should be of value.

It was our purpose to compare the skin temperature and the finger volumes in normal individuals and in arthritics in different room temperatures, and in individuals before and after heating with various modalities. It was not our purpose to measure the efficiency of the various apparatus in their ability to heat living tissues, as this is best done by a thermocouple inserted into the depth of the tissue, and it has been done accurately many times, very recently by Coulter and Osborne.<sup>3</sup> Nor have we measured the skin temperatures of various parts of the body under different conditions, as this has also been well done by Kovács,<sup>4</sup> Bierman,<sup>5</sup> and others.

In our recordings we have attempted

to control all the variable factors. Attempts have been made to have the patient rest quietly and undisturbed, to have him rest in the room for at least one half hour before any recordings were made, and to have constant conditions of room temperature, humidity, air velocity, etc. In all, several hundred recordings were made on more than 30 individuals.

It is known that the temperature of the skin of the fingers depends upon the environmental temperature. There is a very wide range, however, in supposedly normal individuals. In a room temperature of 70 F the skin finger temperatures may vary from 75-90 F in different individuals. If the temperature of the room is lowered to 65 F, the finger temperatures will drop toward this, but a reactive hyperemia will usually soon develop and the fingers become warmer than they were at 70 F. As the room temperature is increased the finger circulation continues to increase. It reaches a maximum in a room temperature of 75-80 F, however.

Certain chronic arthritics show a diminished circulation, especially those with anemia, low blood pressure, poorly nourished fingers, etc. The fingers in the acute stages show evidence of an increased cir-



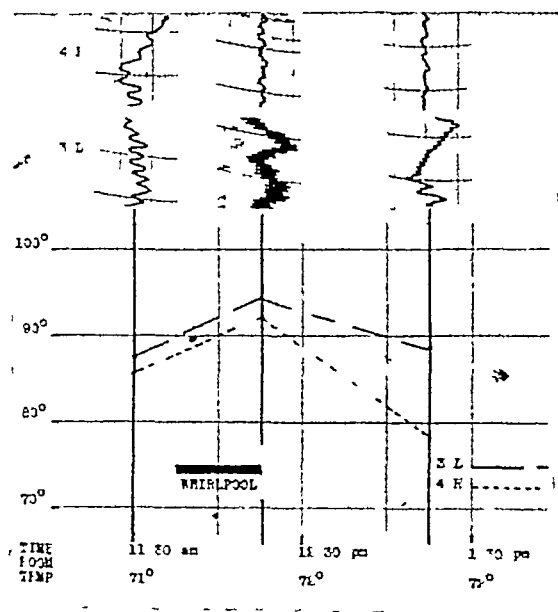


FIG 3 The plethysmograph shows that the circulation in a finger has increased even though the skin temperature is the same. These are tracings of the temperatures and volumes of the fourth finger, right, and the second finger, left, of a 56-year-old woman with chronic rheumatoid arthritis. The left hand was immersed in a whirlpool bath for thirty minutes, and one hour later the temperature had dropped to the original, but the plethysmograph oscillation had not

culatation. A great number of chronic arthritics show the same variations in their entire finger circulation that the supposedly normal individuals do (Fig 4).

Wyatt<sup>8</sup> states that patients with chronic infectious arthritis show a lack of elasticity in the response of the sympathetic nervous system, and that the temperature of the fingers drops below the average after the arthritic ingests 600 cc. of cold water. It was thought, therefore, that perhaps the arthritic would not show an ability to maintain a normal finger circulation in lower temperatures.

This was occasionally found, but not constantly, many arthritics being able to maintain their finger circulation as well as the nonarthritic when exposed to a temperature of 65–70 F. This phenomenon is, of course, almost routinely found in patients subject to vasospasm, such as those suffering from the Raynaud's syndrome, and it is frequently found in older patients with arterio-

sclerosis, many of whom have chronic arthritis.

A number of studies were made of the finger skin temperatures and volume changes in normal and in arthritic individuals before and after heating with various modalities. The closed baker in which carbon filament bulbs maintain a temperature of around 160 F, the whirlpool bath at 112 F, the paraffin bath at 135 F, the inductotherm plate, systemic short-wave heating, and histamine iontophoresis of one finger at 4 ma for four minutes or of the whole hand and forearm at 30 ma for ten minutes were used. It was usually found that while the original temperatures and finger volumes might vary considerably in different individuals, after heating they became almost uniform. It was found that the response to the various modalities used showed only a moderate variation. The closed baker, the whirlpool bath, and systemic body heating gave the best responses. The paraffin bath at 135 F does

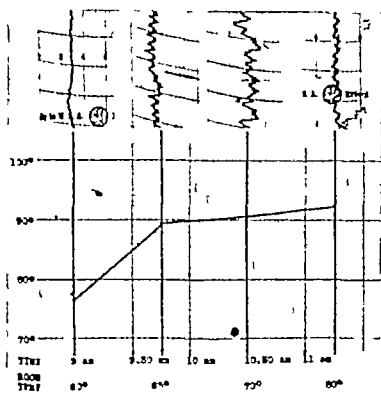


FIG 4 The lower graph represents the rise in temperature of the fourth right finger of a patient with chronic infectious arthritis as the room temperature was increased from 60 to 80 F. The upper graphs show the plethysmograph changes of the finger at the same intervals

not seem to give the increase in circulation that the water whirlpool does at 112 F. The motion of the water may be partially responsible for this, but it is thought that the important reason is that the paraffin in contact with the skin solidifies and thus insulates the skin against the melted paraffin, which is at 135 F, and prevents it from transmitting its heat to the body. Paraffin does have one advantage over water, and that is that repeated use of paraffin tends to improve the texture of the skin, while the water tends to dry it out.

Histamine by iontophoresis to one finger gives a very localized but intense response. This is fairly well tolerated by the patient and gives more superficial hyperemia than any of the other modalities (Fig 5, page 1494). It is not known how deeply this vasodilatation penetrates, but it is found only occasionally that adjacent fingers show a temperature rise and increased oscillation when one finger is treated. When the whole hand and forearm were covered with asbestos paper saturated with a warmed 1-1,000 histamine solution and left to ten minutes

of 20-30 ma, very good increase in circulation was obtained in the treated hand, as evinced by the good increase in plethysmograph tracing and slight rise in temperature. Circulation increases were never noted in the other hand, in fact it usually decreased.

Another very interesting observation is the fact that when one hand only is treated, the other hand becomes almost as warm as the heated hand (Fig 6, page 1495). This is as expected from the observation of Gibbon and Landis<sup>6</sup> and others. Heat is absorbed by the heated hand, and the individual in order to maintain his body temperature equilibrium, suffers a dilatation of the peripheral vessels of all the other extremities if they are capable of dilating, i.e., if the arteries are not sclerotic. This is the so-called Landis test and is a standard procedure for the determination of vasomotor index or potential peripheral vasodilatation. This is of extreme importance and shows the greater value of systemic heating. Even though only one joint is involved, a much more efficient heating of that joint will be obtained if the whole body is heated, be-

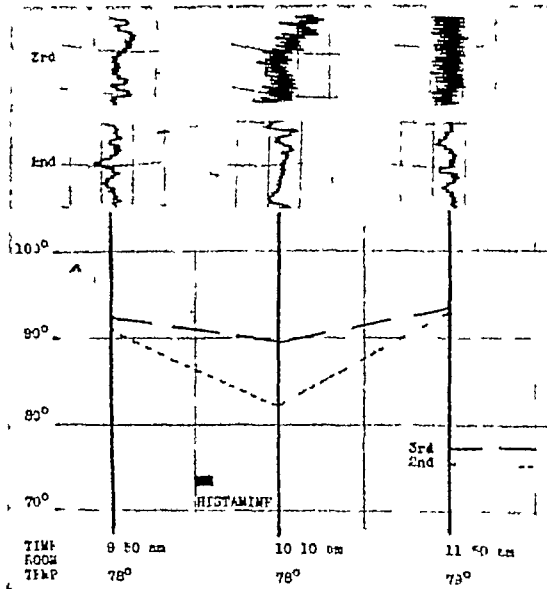


FIG 5 The response to histamine iontophoresis of the second finger, right, of the same patient of 56 years with chronic rheumatoid arthritis as is represented in Fig 3. The temperature drop is probably due to evaporation, but the plethysmograph oscillation in the treated third finger shows a very wide oscillation and is greater than that caused by the whirlpool bath, yet the untreated second finger of the same hand shows no increase in volume.

cause if only the involved joint is heated there is a tendency for that heat to be carried away throughout the entire body. Much greater rises in skin temperatures and greater volume increases were found in the fingers when systemic body heating was used, whether it was by short wave, hot tub, or body baker, then when only one extremity was heated. It is, of course, upon the phenomenon of peripheral vasodilatation that the use of sympathectomy in the treatment of arthritis is based. If the proper sympathetic ganglia are removed from a patient who has a circulatory lack due to vasospasm, there is complete vasomotor relaxation and the circulation of the extremity is permanently increased.

Another observation that was made was that at the end of the first hour the skin temperatures were often down almost to normal, and the plethysmograph recording had definitely decreased. After two or three hours, however, the finger volume as well as the skin temperatures had become normal, and thus indicated a

normal circulation of the finger. Thus, if any sustained increase in the joint circulation is to be made, several hours of heating each day must be given. This is stressed by Warren.<sup>7</sup> A thirty- or forty-minute baking or a short-wave treatment three times a week will cause very little or no increase of the circulation of the finger, but if this is supplemented by home treatment of hot packs, heating lamps, or other measures, much more adequate treatment is rendered. I believe that physiotherapists are coming to recognize that arthritics must be instructed regarding home treatment which should amplify their office treatment, and that by this means arthritis will show better improvement.

The conclusion may also be drawn that benefit may be obtained from the constant occupancy of a room in which the temperature is between 75 and 80 F, and vice versa, that exposure to low outdoor winter temperatures should be avoided.

Thus, by means of the skin thermometer and the plethysmograph, it is pos-

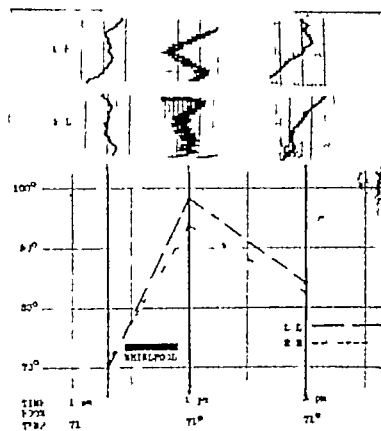


FIG 6 This shows the temperature rise and the volume increase in the unheated hand. The patient is a 44-year-old woman with osteoarthritis. The left hand was placed in the whirlpool bath at 112 F for thirty minutes. The second finger of the right hand showed almost as great a temperature and volume increase as the heated second finger of the left hand

sible to determine which of the chronic arthritides show a deficient circulation. It is also possible to find which is the most efficient method to increase this circulation and so usually possible to find some modality that will make a deficient blood supply a more adequate one (Fig 7).

It is realized that a larger series of observations must be made and it is our purpose to continue this study in order to increase the range and accuracy of the findings. It is especially our desire to classify carefully and accurately a large group of arthritides as to whether they are chronic rheumatoid or osteoarthritic, and to see if the skin temperatures and finger volume changes show any constant characteristic circulatory lack in the two types or possibly an inability to maintain average circulation when the fingers are exposed to low temperatures. It is also our desire to see by means of controls whether heat or rest causes faster improvement in a patient whose finger circulation is increased, as during an acute exacerbation. We also plan to determine which method of heating seems most efficient in per-

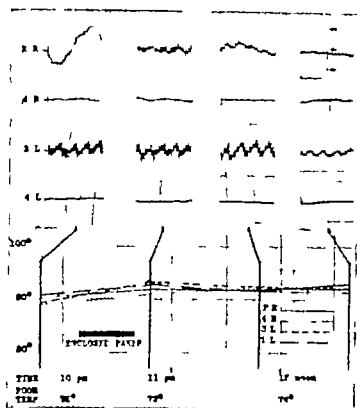


FIG 7 The response obtained in a patient with a subacute infectious arthritis when the left hand was heated in an enclosed baker. The patient had a relatively high temperature in all the fingers before the heating but low plethysmograph oscillations in both fourth fingers. The oscillations in the heated third left finger showed the greatest rise, although a good rise was obtained in the unheated second right. The oscillations of the fourth fingers did not increase.

# ALLERGIC MANIFESTATIONS IN THE CENTRAL NERVOUS SYSTEM

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**D**URING the past two decades the knowledge of the new branch of medical science to which has been given the name of allergy has been widely disseminated and universally accepted. Today the physician who attempts to treat asthma, hay fever, eczema, and hives without giving his patient the opportunity of an allergic study may well be classed with the obstetrician who washes his hands only after a confinement, or the medical man who treats diphtheria without antitoxin, or syphilis without salvarsan.

While the recognition of these four diseases as being of allergic origin is now universal, there are many other manifestations of allergic shock which, while familiar to the allergist, are not sufficiently appreciated by the general practitioner. Today it is my purpose to discuss briefly wherein the work of the allergist is related to that of the neurologist.

When the tissue of an allergic patient comes in contact with the specific protein to which it is sensitized a reaction, or shock, occurs. This consists in local edema, spasm of smooth muscle, or hyperactivity of glandular secretion. If this reaction occurs in the nasal mucous membrane the result is hay fever or rhinorrhea. If it is in the larynx it causes croup. If the bronchial tubes are affected asthma or a condition resembling recurring bronchitis results. When the intestines are the site of the reaction mucous colitis occurs. If the skin is involved the outcome is eczema, urticaria, or angioneurotic edema. When a similar reaction occurs within the cranial cavity the localized edema may simulate brain tumor, or the local anemia may cause various transient neurologic symptoms.

The recognized symptoms of increased intracranial pressure are headache, vomit-

ing, dizziness, symptoms referable to pressure on the optic nerve, convulsions, paralysis, and psychosis.

Headache is perhaps the commonest ailment to which mankind is heir, and is often most difficult to prevent, or cure. When a patient comes to a physician complaining of this symptom many things must be investigated. Refractive errors, mental fatigue, endocrine dysfunction, constipation, nephritis, arteriosclerosis, and such intracranial lesions as meningitis, syphilis, tumors, or abscesses must be considered and either proved or ruled out by thorough clinical and laboratory study.

Even after all these have been eliminated there remains a large group of cases of headaches, usually, but not always, affecting one side of the head only, which recur at regular intervals during life. This was first described by Galen as hemi-crania, a name which in nineteen hundred years has degenerated to migraine. It is better known to the laity as "sick headache."

The typical migraine attack begins with prodromes including lassitude, spots or lights before the eyes, or partial amblyopia. As the attack progresses, headache appears, usually first noticed over one eye and then localizing on one side of the head. There is usually dizziness and finally vomiting, often intractable for one or two days. Though between attacks the patient is usually quite well, the recurrence is as inevitable as fate and the victim lives his life in pain, recovering from pain, or dreading more pain.

In 1927 Vaughan<sup>1</sup> called attention to the fact that the elements of heredity and periodicity in migraine bore a close resemblance to asthma, urticaria, and other allergic diseases, and made an intensive

study of a number of cases from an allergic standpoint. He found that a much larger percentage gave a family history of other allergic diseases than is normal. In their past histories the patients also showed an abnormally high incident of allergy. By means of skin tests and elimination diets he was able to determine the exciting cause, usually foods, but often such allergens as pollens or animal hairs. By elimination of the offending proteins from the diet, attacks could be prevented and by feeding them he could bring them on at will.

During the last decade Vaughan's work has been confirmed by allergists all over the country, and today it is accepted by all who are familiar with the technique of an allergic study that migraine, previously considered a mysterious and incurable visitation of the Almighty, is an allergic disease, and that, if studied from this point of view, either complete relief or marked improvement can be obtained in from 70 to 85 per cent of the cases. There is now no excuse for allowing a patient's life to be ruined by recurring painful and prostrating attacks of migraine. Today the cause can be recognized and in certainly three quarters of the cases the attacks can be prevented.

In early childhood the symptoms of headache in migraine is often unrecognized or even absent, the gastric symptoms being those that attract the attention. There is considerable reason to believe that many of the cases diagnosed cyclic vomiting are in reality cases of allergic migraine occurring in the young child, the vomiting being due to cerebral edema not to any gastric or metabolic abnormality.

Constant dizziness, while not a painful affection, is one that can cause discomfort and unhappiness and be a severe handicap in life. It may be of cerebellar or otitic origin, is frequently associated with nystagmus, and is often of intractable chronicity. One cause of dizziness of interest to the otologist as well as the neurologist is the symptom complex known as Ménière's disease, or vestibular vertigo, characterized by profound and pro-

longed dizziness with or without tinnitus, and sometimes associated with prostration, vomiting, and even convulsions. While this distressing condition is usually a manifestation of diseases of the semicircular canals, or the central nervous system, such as hemorrhage, tumor, or syphilis, a symptom complex indistinguishable therefrom can be caused by allergy. Various authors have reported such cases which proved to be due to such allergens as milk, egg, apple, orris root, horse or dog dander and were completely relieved by the elimination of the offending material.

One such case has come under my care recently. A physician, 48 years of age, had carried on an active practice for twenty five years. He had always been in perfect health except that he had suffered from fall hay fever for twenty years. This was much improved since taking ragweed inoculations twelve years ago. His history was that for the past two years he had suffered from a feeling of drowsiness and lack of ambition in the morning and at times abdominal distress suggesting gastric ulcer. In March, 1937, he began to suffer from dizziness, most marked in the morning and aggravated by sudden turning of the head. The symptom increased in severity until he had difficulty in driving his car and dreaded going into the operating room for fear he would be unable to complete an operation. The best medical advice available, including that of internists, neurologists, otologists, ophthalmologists, and roentgenologists had been unable to determine the cause of his unfortunate condition or give him any relief. In June, 1937, when, fearing brain tumor, he was making his plans to go either to Johns Hopkins or the Mayo Clinic, Dr. Gage, finding nothing in his ears to account for his symptoms and in view of the fact that the patient had suffered from hay fever, referred him to me to see if his symptoms might possibly be due to an allergic condition.

A set of some two hundred skin tests revealed strong sensitivities, besides that of the fall pollens, to barley, buckwheat,

corn, flaxseed, banana, asparagus, beet, onion, parsnip, potato, spinach, string bean, tomato, and turnip among the foods, and to kapok, orris root, pyrethrum, and tobacco. His diet was arranged according to these findings, environmental irritants eliminated, and the use of tobacco prohibited. Within a few days the dizziness disappeared, his energy returned, and he is again carrying on his active practice without fear or anxiety. The results of the treatment make it certain that the Mènière's symptoms, which nearly made our confrère retire from practice, was a case of cerebral allergy. As soon as this was ascertained, cure promptly followed.

There is no manifestation of illness that causes more profound terror than does a convulsion. While they are in fact usually much less serious than they appear to the lay onlooker, they are of enough importance to warrant careful study.

While those convulsions of infancy which occur in acute febrile diseases have usually but little more significance than does a chill in an adult and are merely nature's method of notifying the parents that the service of a physician is needed, they may also signify the onset of serious intracranial disease, and recurring convulsions of childhood may lead to mental affections of later life.

The etiology of infantile convulsions, apparently unassociated with injury or disease of the central nervous system, or with fever, have long been a puzzle to the medical profession. Teething, indigestion, overfeeding, and worms have been cited as the underlying factors. This subject has been but slightly touched upon in the literature on allergy and no systematic study has been reported by any allergist.

As far back as 1921, Thompson<sup>2</sup> in London, in a study of 200 cases of infantile convulsions, stated that these were usually cases of poisoning by milk, eggs, or cereals. Though he made no mention of allergy, these are the three foods that most commonly cause allergic symptoms.

From my own observations, I am convinced that at least a certain number of

cases of convulsions in infancy are due to allergic reactions in the central nervous system. Two years ago a child of 23 months of age was brought to me with a history of convulsions for two months, occurring several times a day. Physical examination failed to explain the convulsions. Intestinal parasites were ruled out by a therapeutic test. Skin tests, however, gave positive reactions to apple, date, beef, celery, spinach, dog hair, feathers, flaxseed, and cotton. During the two weeks in the hospital, while the tests were being made, the child had from three to ten convulsions a day. With the completion of the tests, the removal of cotton and feathers from the environment, and the elimination of the offending proteins from the diet, the convulsions ceased. The child remained free from convulsions during the next ten days during which it remained under observation in the hospital. It would be well if every unexplained case of infantile convulsions could be studied from the point of view of the allergist. If this were done, I believe that a not inconsiderable number would be found to be allergic and many children would be saved from the horrors of the life of the epileptic.

In 1922 Ward<sup>3</sup> propounded the theory that epilepsy was as much a manifestation of allergy as is asthma, and he reported 2 cases of epilepsy due to food allergy. The next year Howell<sup>4</sup> reported 14 epileptics who showed food sensitivity, whose attacks could be prevented or produced by food manipulation. The same year Wallis, Nicoll, and Craig<sup>5</sup> in London showed that 46 of 122 insane epileptics studied showed evidence of allergic sensitivity, and that 14 in whom positive skin tests were found were cured. In 1927 Ward and Patterson,<sup>6</sup> in the study of 1,000 epileptics, obtained positive skin tests in 48 per cent of them. Since then there have appeared scattered reports<sup>7</sup> of isolated cases, or small series of epileptics, showing definite evidence of an allergic etiology.

During the past ten years I have examined a large number of cases of epilepsy from an allergic standpoint, and, though

my results have not been as striking as some of those previously reported, possibly due to the fact that most of them were cases of long standing in state hospitals in which marked cerebral degeneration had taken place, they have convinced me that in some cases of epilepsy there is a definite allergic etiology, and, if this is discovered, favorable results may be obtained.

The first case I studied aroused my enthusiasm to such an extent that I have pursued the study avidly ever since.

### Case Reports

**Case 1**—M F 10 years of age was referred to me as a pediatrist by Dr. Price Lewis of Holland Patent New York with a diagnosis of epilepsy. Her family history is not significant. Her father and mother are in good health. Her father is a dairy farmer and she lives on the farm. In her past history the only point of importance is that she had asthma since infancy. The onset of her epileptic convulsions was at the age of 6 years. The epileptic attacks had increased in frequency during the previous four years until they were occurring on the average of twice a week. Though unfamiliar at that time with the work that had been done on the relation of allergy to epilepsy it was suggested that if the asthma could be cured the epileptic attacks might become less frequent. No hopes were offered for a cure of the epilepsy. The parents agreed and eighty skin tests were made by the scratch method with the following positive results: cattle hair 3 plus, cottonseed 4 plus, radish 2 plus and cheese, plus-minus.

Cotton was removed from her environment, radishes, cheese and salad oils eliminated from her diet, and as her home conditions precluded the avoidance of the hair and dander of cattle weekly inoculations of cattle hair extract were begun on May 19 1931 with a dose of 0.1 cc of a 1:100,000 dilution. These were continued weekly with increasing doses, the last dose 0.9 cc of a dilution of 1:500 being given eight months later on January 22 1932.

The results were surprising. As the dose of cattle hair increased not only were the asthmatic attacks relieved but the epileptic seizures became less and less frequent and in November 1931 ceased entirely. Since then the child has been quite well and has had neither attacks of asthma nor epileptic convulsions.

**Case 2**—Another striking result was in the case of B W born in 1916. She was an only

child born by cesarian section, nursed for four months, and then given cows milk and dextri-maltose. At the age of 18 months she had facial eczema. She refused to eat eggs. She had numerous colds and stomach upsets. She had frequent attacks of croup. At 5 years she had pneumonia. Since she was 3 years of age, she has had hay fever every fall sometimes followed by asthma. She had ragweed injections at 10 years of age with some improvement. At that time skin tests showed her sensitive to spinach, onions, rice, and corn.

Since she was 4 years of age she has had digestive upsets, constipation and recurrent attacks of mucous colitis requiring weekly irrigations.

Her epileptic attacks date from the age of 10 years. During the succeeding nine years she had convulsions varying from once a month to once every three months. They always occurred in bed. She has fallen out of bed and bitten her tongue. The patient was a chronic invalid.

Owing to the extensive allergic history 188 skin tests were made by the scratch method with the following results: 4 plus to goldenrod, 3 plus to banana and asparagus, 2 plus to giant and short ragweed, dahlia, dandelion, cabbage, corn, garlic, onion and potato, and 1 plus to orris root, pyrethrum, tobacco, coffee, buckwheat, beet and the pollen of mugwort and sunflower. Suspicious but not definitely positive reactions were given to tea, barley, flaxseed, oats, grapefruit, rhubarb, spinach, and almond.

A diet free of the above-mentioned foods was ordered and on March 4 1933 inoculations with giant and short ragweed, goldenrod and dandelion were started and continued until August.

The result was that the patient that summer had the first autumn without hay fever in fifteen years, and was much improved in regard to her intestinal condition. The only convulsion she had in the next fourteen months was when after driving for two days on her return from her summer home in Rhode Island and eating at restaurants where her dietary régime was somewhat lax she had one mild attack. She said that for the first time in her life she considered herself to be well. After this she moved to another city and track of her was lost.

**Case 3**—I have now under observation a trained nurse 22 years old the daughter of a physician. Her father suffers from migraine and urticaria. The family history and the past history is otherwise immaterial. For the past seven years she has suffered from attacks of petit mal finally occurring five to seven times a day. In



June, 1937, and January and March, 1938, she had major epileptic attacks

Physical examination gave no cause for the symptoms. One hundred and sixty-five skin tests were negative except for a suspicious reaction to cheese and a delayed reaction to staphylococcus pyogenes aureus. On May 1 Rowe's egg, milk- and wheat-free elimination diets were started. During the next two weeks on diet #1 she had seven attacks, all occurring in two days of examinations, and dietary lapses. For two weeks on diet #2 she had no attacks. On diet #3 she had eleven attacks while attending a reunion when she broke her diet. Two weeks more on strict attention to diet #3 produced no attacks as did the next two weeks when she ate a mixture of all three diets.

At this point wheat was added to her diet and in the next two weeks she had seventeen attacks of petit mal. Two more weeks on the basic diets showed but two attacks, but when milk was added to her diet she had fourteen petit mal and one grand mal attack in one day. The withdrawal of the milk improved the condition promptly and the addition of egg precipitated no attacks. While the study of this case is not yet completed we have gone far enough to prove definitely that her epileptic attacks are allergic and can be precipitated at will by the ingestion of wheat or milk. It seems reasonable to hope that desensitization to these foods will relieve the patient of her unfortunate affliction.\*

It is probable that the symptom complex we know as epilepsy is a manifestation of various conditions, one of which is allergy. It is highly improbable that an allergic study will relieve all cases of epilepsy. If, however, even 10 per cent of the sufferers from this dire affliction can be cured it will be a source of rejoicing to thousands of unfortunate and unhappy human beings.

In 1929 Foster Kennedy<sup>8</sup> reported a series of cases of paralysis of the arms following serum sickness. Most of the cases followed the administration of tetanus antitoxin, thus eliminating the question of postdiphtheritic paralysis. The most common muscles involved were the deltoids. Reactions of degeneration appeared and the paralysis lasted several weeks, but ended in complete recovery.

\* Since this paper was written the patient has been desensitized to milk by the oral method. When last seen she was drinking milk regularly, and had had no attacks for two months.

During the next few years several other authors reported similar cases and in 1933 Doyle<sup>9</sup> collected 49 cases from the literature. Opinions differ as to whether the lesion in these cases is an urticaria of the cerebrum or an edema of the sheaths of the peripheral nerves. These anaphylactic reactions to serum are of course aggravated cases of allergic shock.

Other authors have reported incidents in allergic cases sometimes associated with asthma or migraine, and sometimes by themselves where there occurred attacks of local anesthesia or paresthesia of the hands followed by temporary paralysis in which the symptoms recovered promptly on the administration of adrenalin and could be prevented by eliminating from the diet the foods to which the patient was sensitized. Such attacks are probably due not so much to cerebral edema as to cerebral anemia from allergic contraction of the cerebral vessels.

The mental effects of allergy have received very little study, though nervous symptoms are so common in association with the allergic diseases that until recently asthma, urticaria, angioneurotic edema and migraine were thought to be primarily diseases of the nervous system.

It is a matter of common experience that the asthmatic child, though amenable normally, becomes, during an asthmatic seizure, irritable and disagreeable in the extreme. This nervous excitability is usually considered to be the result of the discomfort of the attack getting on the child's nerves. This, to a considerable extent, is probably true, but numerous cases have been reported by Shannon<sup>10</sup> and other allergists in which high strung, nervous, unruly, and disagreeable children who showed none of the accepted manifestations of allergy have been found to be hypersensitive to certain foods—most commonly wheat. When the offending proteins were removed from the diet these children's mental attitude toward life has changed and in a few weeks the spoiled, irritable child has become happy, contented, and friendly. Insomnia, too, has been over-

come by correcting the diet in allergic patients.

Though it has been demonstrated many times that allergic shock can cause mental depression, bewilderment, and even active delirium, the psychiatrist who, in recent years has done such remarkable work with the malarial treatment of paresis and the insulin treatment of dementia praecox, has entirely overlooked the possibility of some of the recurrent types of psychosis having an allergic background. It is to be hoped that in the near future some psychiatrist may be aroused to the advisability of making a thorough allergic study of the different types of psychosis. The possibilities are tremendous.

I am now studying a patient at the Marcy State Hospital who is of interest from this point of view. She is a chronic asthmatic and for years has had periodic attacks of mental confusion in which she becomes quite irrational. She herself believes that these are associated with her asthmatic attacks. She gives strong skin reactions to dog and cattle hair. Since coming to the hospital she has improved greatly as she has had only one psychic upset and very little asthma. It has recently been learned that a dog occasionally visits the ward and that his presence makes her nervous and causes some difficulty in breathing. We are not yet prepared to say that her psychic condition is due to dog allergy as further observation is necessary. It is, however, sufficiently suggestive to be worthy of mention.

If we accept the statement that these various neurologic symptoms which I have outlined may be the manifestation of allergic shock, it becomes our duty when such a case comes under our observation, to determine whether we are dealing with the results of specific hypersensitivity. To accomplish this two things are requisite: keeping in mind the possibility of an allergic factor and proving its presence or absence by an adequate allergic investigation.

By an allergic investigation we do not mean renting some allergens at a drug

store and making a few scratches on the arm. When the method of diagnosing asthma, hay fever, and eczema by means of skin testing was first introduced we thought that in these tests we had a simple and infallible means of diagnosing the etiologic basis of the allergic disease. To our sorrow we have learned differently. While the skin tests are of inestimable value and the knowledge obtained from them has revolutionized one branch of the medical sciences, they are far from infallible, and the modern allergic study involves much besides simple skin testing.

The family history is of the greatest value and must be gone into carefully. In practically all allergic cases there is a family history of allergy. Asthma, hay fever, eczema, hives, migraine, and mucous colitis crop out indiscriminately among ancestors and relatives. The past personal history must be gone into. If a child had eczema in infancy and develops convulsions later there is a greater chance of the epilepsy being allergic than where no past history of allergy exists. The skin tests, both epidermal and endermal, must be made in adequate numbers and read by a person thoroughly familiar with their interpretation. Knowledge obtained from them may either solve the problem or save the patients months of tedious experimentation. The environment must be studied with minute care both in the home and outside of it. In many cases careful dietary diaries must be kept showing every detail of the food intake and its relations to the various symptoms.

Supplementing these the elimination diets must be used and used for weeks, or months, in order to confirm, or refute, the clues first given to us through the tests. Blood counts are of value, an increased eosinophilia pointing strongly toward an allergic condition.

In 1934 Vaughan<sup>11</sup> described the leukopenic index which, in doubtful cases, may give valuable information. The normal person following a meal will show in the blood a digestive leukocytosis. The allergic patient, on the other hand, if fed

the protein to which he is sensitive shows in ninety minutes a drop in the white count instead of the normal rise. This has been used with excellent results in cases in which some definite food is under suspicion and the skin tests have failed us. The drawbacks to the method are that only one food can be tested for in any one day and, if the patient is sensitive to it, the feeding of the suspected diet may precipitate a violent attack of illness. However, this leukopenic index may be used when other methods fail to solve the dietetic problem.

At best an adequate allergic study is a matter of weeks, more often it takes months, or even years. It is a tedious and pattering job. When, however, one considers that the diseases which are now classed as allergic were previously considered to be of unknown etiology and incurable, the labor and time are well spent. The gratitude of the life-long sufferer from asthma, epilepsy, or migraine who is relieved of his distressing affliction is one of the most touching things encountered in the practice of medicine.

Dr Osler once said that syphilis was a disease which could simulate any other disease in man, and that in making a diagnosis it should be considered no matter how remote the possibility appeared. The same may now be said of allergy. Allergists do not claim that all those suf-

fering from paralysis, headache, vertigo, or convulsions are allergic. They do, however, emphasize that in all these conditions allergy may be the underlying cause, and in searching for the etiology of all obscure nervous conditions allergy should be taken into consideration, and especially when there is a family or past history of other allergic manifestations the patient should be given the opportunity of a scientific allergic investigation.

The students of allergy have scarcely scratched the surface of the relation of protein hypersensitivity to diseases of the nervous system. It is possible that, if psychiatrists and neurologists would keep more in mind this new diagnostic and therapeutic aid, other obscure neurologic problems might be solved.

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## "LET THY LIGHT SO SHINE"

Publicity of medical activities should be positive. We should tell everyone exactly what their bodies are, how they work, and how they become diseased. Frank discussions of anatomy, physiology, and pathology will certainly give to the layman certain important bits of information so that he will understand why certain theories are wrong.

With the change of practices and approach which the present trends have brought about, this type of education has been forced upon the society as a whole. But that is not the only or the best way to carry this out. Every physician should open up his knowledge to his patients. He should tell them everything they want to know that he knows. If they ask about tubercle bacilli or the pneumococcus, show them pic-

tures and tissue damage from these organisms. If they want to know about the appendix or gall bladder, show them where it is. No question should be left unanswered, and no patient who comes to a physician with a question should ever be told "We can't go into that", "There isn't time to talk about that", "You wouldn't understand it if I told you". If every physician would appoint himself as a committee of one to educate every layman who consults him as a patient, I think that in a few years our troubles would be over. The worst thing that we must face today is the fact that our knowledge is not appreciated. It is not appreciated because it is not known because we haven't told them of it. Let's open up a bit.—*Jackson County (Kansas) Medical Bulletin*

## Special Article

### EDUCATION VERSUS COMPULSION

CHARLES F. BOLDUAN, M.D., New York City

(From the New York City Department of Health)

**F**EW people in the world are as health conscious as are those in this country—and in no other country has public health in general made greater progress. In the few minutes at my disposal I shall try to give you one of the main reasons for this excellent showing.

As one of the older members of the Department of Health, let me reminisce a bit. I like to recall a visit paid to our Department in 1908 by the great leader in bacteriology, Robert Koch, known throughout the world as the discoverer of the tubercle bacillus. He was tremendously interested in our work and commented especially on our control of diphtheria. Turning to my chief, Dr. Hermann Biggs, he said: "You must admit that many of the discoveries on which your work is based were made in Germany. I am chagrined to see how far you are ahead of us in applying these discoveries in the form of practical measures for the improvement of public health."

One other experience. For seven years, 1921-1928, I was stationed in Europe supervising quarantine and immigration activities for the United States Public Health Service. This gave me an excellent opportunity to observe how public health work was carried on in various countries of continental Europe. To a large extent it is quite unlike the way in which we carry on. Over there it is still largely a matter of police power, "You must do this; you are forbidden to do that." In fact, in some European countries health work is still a division of police administration, so that few people know much about the health officer or his activities. In many ways this resembles

the situation in this country seventy-five years ago.

Now let me jump to 1929, ten years ago, to link up these two reminiscences. Koch, as I said, had marveled at our splendid work against diphtheria. During the year of his visit, in 1908, New York City registered 1,758 deaths of diphtheria. In a city of four and one-half million that was not then regarded as unusual. Other cities, other countries had a higher death toll per 100,000. Five years later Behring initiated another important advance in the control of diphtheria, namely, the protection of healthy children by immunization. At once this new method was tested, but it was soon found that a great deal of work had still to be done in order to devise a way in which it could be effectively utilized. Most of this basic work was done by the late Dr. William H. Park, director of the Health Department's laboratories. In the fall of 1928, with substantial aid supplied from private sources, the Department set out to control diphtheria in New York City. Experience indicated that if all babies could be immunized, diphtheria might be wiped out. The manner in which the Department of Health set about to accomplish this object illustrates what I have said. It did not have the Board of Health enact a law making it compulsory for parents to have their young children immunized; instead it organized an intensive campaign to educate parents regarding the value of such immunization. *Health education in preference to police power.* That was the decision. The results are probably familiar to most of you. In place of the 1,758 diphtheria deaths in 1908 and even the 642 in 1928

which was the last year before our campaign of education, there were only 26 diphtheria deaths in New York City last year. The results speak for themselves.

It is in thorough accord with our principles of government that we strive to obtain results by education rather than by police compulsion. Our experience shows that the results are more lasting. I wonder how many of those listening to this broadcast do not know how important it is to have children immunized against diphtheria, and have not had their own children so protected.

This idea of promoting public health through education is distinctly an American achievement—and goes back to the nineties when it was first applied to tuberculosis. At that time it was necessary to make the people realize that tuberculosis was a communicable disease caused by a germ in the patient's sputum, that the spread of tuberculosis to others could be prevented, and that it was important to detect the disease early, for then it was often possible to arrest its progress. To this end the Department of Health organized popular lectures, showed stereopticon pictures in the parks, distributed millions of informative leaflets, prepared exhibits, published articles in newspapers and magazines, cooperated with medical societies, schools, churches, labor unions—in short, utilized all effective vehicles for reaching the public.

Subsequently this same kind of educational program was successfully used in order to combat infant mortality, and the reduction of the infant mortality rate from 141 per 1,000 live births in 1898 to 38 per 1,000 last year may be credited very largely to health education.

Chief among those who carry on the Health Department's work in health education are our public health nurses, some 800 in number. They work in the prenatal and child health stations, in

the tuberculosis and syphilis clinics, in the public and parochial schools, and they visit in the homes. Everywhere they go they give helpful health information and reach hundreds of thousands of persons yearly.

In all this work we but follow the example of successful commercial organizations. They have something to sell for profit and find that it pays to advertise. The Health Department has nothing to sell for profit, but it has something of great value to you, namely, authoritative information and guidance on health matters. We, too, advertise this service, for we know it will help you avoid illness, disability, and perhaps death.

This very radio program on which I am now speaking is an example of the educational work constantly carried on by the Department of Health. If you will look over the daily radio programs in your newspaper you will find several of our health programs listed each week. Besides this, extensive use is made of newspapers, magazines, printed leaflets, lectures, posters, and exhibits. In order to keep private physicians informed on matters of public health the Department publishes a *Quarterly Bulletin*, organizes refresher courses of clinical instruction, and presents papers at meetings of the medical societies. For medical students, nurses, social service workers, teachers, and others we arrange lectures and visits in order to see the Health Department's activities.

I hope that when you visit the World's Fair you will stop at the New York City Building and see the Health Department's exhibit. Many of you will be surprised to see the many ways in which the Department protects you against disease.

Altogether this brief account will show you how and why, in this country, we have been so successful in promoting health by securing the cooperation of an informed public.

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Young Doctor "Why do you always ask your patients what they have for dinner?"

Old Doctor "It guides me in making out their bills."

# GASTROENTEROLOGY AND PROCTOLOGY

ALBERT F R ANDRESEN, M D , F A C P , Brooklyn, New York

IN FOUNDING this new section devoted to the consideration of diseases of the alimentary canal, our Society has recognized the growing importance of this subject, the interest of its members in its various phases, and the desirability of disseminating authoritative information along these lines. The section is not only to be a forum for the exchange of ideas among specialists in gastroenterology and proctology, but must also recognize its responsibility as an educational force by encouraging the general practitioner and specialists in other fields to attend its meetings, to make contributions to its deliberations, and to ask questions.

We must recognize the fact that gastroenterology and proctology, as specialties are on trial in the court of medical opinion. Even as gastroenterologists are but slowly obtaining recognition of their specialty as a definite and important subspecialty of internal medicine so also are proctologists still striving with the surgeons for their place in the sun. Although special boards for the certification of specialists in these fields have been formed and will soon function although the general medical profession—and the public as well—recognize the need for specialists in these fields, not only because of the vast amount of technical knowledge that has been developed in these specialties but because of the time-consuming nature of their diagnostic and therapeutic procedures yet there has sprung up a distinct feeling of suspicion, almost of antipathy, to many members of these special groups so I feel it may be desirable to give some consideration to the explanation for this antipathy.

The first reason for the cloud under which our specialties are laboring is that the fields both of gastroenterology and of proctology have presented alluring possibilities to quacks and unscrupulous prac-

titioners who, by means of impressive and often unnecessary or even spurious diagnostic and therapeutic procedures, have for a long time been bleeding the gullible public. They have been ably assisted by patent medicine manufacturers who, by their persistent advertising of their products as remedies for constipation, indigestion, biliousness, colitis, piles, etc. have made the public conscious of its gastrointestinal tract, have instilled false ideas regarding gastrointestinal physiology, and have induced susceptible individuals to believe that they are suffering from diseased conditions which are not present, and which, when not relieved by the medicines, have made them turn from nostrums to quackery.

Another reason for the aspersions cast upon our specialties is that there is a growing tendency to make them more and more complicated, or at least to make them appear so. Much research work, done by amateurs without any particular object in view beyond impressing the uninitiated, is then used as a basis for new and often unsuccessful methods of diagnosis and treatment. Intricate and often elaborate and expensive diagnostic procedures are found after prolonged trial to be so susceptible to error or so unreliable in practice that they are abandoned for a time only to be tried again and reported upon later. Time-consuming, expensive, disagreeable, and even painful treatments or forms of medication are instituted, are encouraged by the advertising of manufacturers who make the apparatus or drugs used, are adopted by practitioners who without accurate knowledge of the principles involved, have been impressed by all this propaganda, and may continue in vogue long after thorough trial has proved them to be unnecessary or even actually harmful. Among questionable

*Address by the chairman to the first annual meeting of the new Section on Gastroenterology and Proctology of the Medical Society of the State of New York Syracuse April 26 1939*

*diagnostic procedures* may be included the use of fluoroscopy, without films, in gastrointestinal diagnosis. Many tragic failures to recognize early and even advanced carcinoma by fluoroscopy alone should be sufficient to condemn the practice. Although in the differential diagnosis between gastric ulcer and carcinoma the value of repeated roentgen-ray examinations has been demonstrated, the report of a single x-ray opinion is too often accepted as final, and although a carcinoma of the colon can be recognized with certainty only by means of an opaque enema study and often only in the postevacuation film, we frequently see the acceptance of a negative report based only on a gastrointestinal series after a barium meal. The almost utter futility of attempting to draw conclusions from an analysis of a single specimen of gastric contents removed after a starch and water meal has been demonstrated, but is still in general use. Overemphasis upon the value of duodenal biliary drainage, especially of a negative finding after a single examination, is also reprehensible. The tendency to neglect standard examinations of limited scope, such as gastroscopy and peritoneoscopy, though these in themselves may be of considerable diagnostic aid, should be avoided, the latter being used to complete a diagnosis rather than to make it. On the other hand neglect of such important procedures as proctoscopy and esophagoscopy may result in serious errors. In gastrointestinal allergy, although the only really reliable way to determine sensitivity to a given food is by the method of observing the results of eating and withdrawing the food, diagnostic skin tests are still extensively employed, and complicated "elimination diets" are prescribed for patients whose intelligence is not sufficient to make the conclusions reliable.

In the realm of *treatment*, many methods still in use have been proved useless or unnecessary. Although repeated gastric lavage, formerly used in all manner of cases, is now rarely resorted to, duodenal lavage or biliary drainage is still

used to excess, even though a fatty meal will accomplish the same result. Although it has been shown that uncomplicated peptic ulcers heal spontaneously and rapidly, the advocates of the constantly increasing list of treatments and medications for this condition still use the roentgen ray to prove that their particular methods are responsible for the result. In ulcerative colitis, overtreatment by medication, vaccine therapy, and even operation is often used where allergic study might disclose a food as the cause, and its elimination from the diet might result in a brilliant though simple cure. Simple diverticula are occasionally subjected to unnecessary operation, whereas diverticulitis is frequently undertreated or maltreated. The injection of hemorrhoids or hernial sacs is used in cases where it is contraindicated or where a knowledge of its limitations would have precluded its use, and, on the other hand, extensive rectal operations are performed in cases where local treatment would have sufficed. Altogether too many patients are accused of having "nervous indigestion" and treated as psychopathic cases when careful study would have revealed a definite lesion as causing the symptoms.

These are but a few of the more frequent and flagrant abuses being perpetrated upon patients, not necessarily as a result of any reprehensible behavior on the part of the attendant, but often because the attendant is not acquainted with the true value of the methods employed. It is quite evident that it is the duty of those who are in a position to know the value of such procedures to disseminate such information to the medical profession by means of lectures, papers, and books, and to encourage and guide a free discussion of gastroenterological problems whenever the occasion permits. It is with this end in view, in planning this first meeting of the Section on Gastroenterology and Proctology, your officers have arranged for a round-table discussion, by experts in gastroenterology, internal medicine, surgery, and radiology, of subjects and questions submitted by the membership of the Society at large.

# Medical News

## A Doctor's Victory in the Phone-Rate Fray

A decision that may have far reaching effects among members of the medical profession, if sustained by the higher courts, was handed down on July 6 by Municipal Court Justice Nicholas M. Pette in Queens who ruled that a physician who maintains his office in his home is entitled to residence-telephone rates.

The decision ordered the New York Telephone Company to refund to Dr. Henry C. Eichacker of 6021 Putnam Avenue, Ridgewood, Queens \$131.56 which represented the difference between residence and business rates paid by him from January 7, 1931 to October 1, 1936. He also received the award of counsel fees of \$160 and costs. He sought a refund from March 1, 1923 but this additional time was ruled out by the statute of limitations.

In his decision Justice Pette cited a Public Service Commission ruling concerning the application of residence rates in the office of a physician when such office is located in the subscriber's residence and the office is not a part of an office building.

He further held that the Telephone Company did not comply with the tariff filed in 1923

in that it failed to provide for the plaintiff the kind and type of service to which he became entitled. The responsibility for the selection of the appropriate service classification is on the public utility and not on the subscriber.

Asserting that the public service companies constitute virtual monopolies, the court held that a different rule should obtain between them and their customers than that which obtained at common law between vendor and vendee.

The decision found that the subscriber had no choice of his purchase and must accept it at the terms offered or do without it.

Dr. Eichacker, a former president of the Queens County Medical Society originally brought the case before Municipal Court Justice Harold M. Crawford in Queens, who dismissed the action. On appeal, the judgment was reversed and a new trial granted.

Ernest F. W. Wildermuth, attorney for Dr. Eichacker, estimated that if the ruling of the court were upheld on appeal, the telephone company would be required to refund more than \$2,000,000 to physician subscribers within its territory.

## County News

### Erie County

The Buffalo Courier Express has arranged with the Medical Society County of Erie to publish a series of full page articles, in display form, to educate the reading public to the fallacies of compulsory health insurance and to present the medical profession's viewpoint. The expense is defrayed by voluntary subscription.

The annual meeting of the Buffalo Surgical Society was held May 23 at the Buffalo Club. The president, Dr. Alfred H. Clark, presiding. The scientific program was devoted to interesting case reports by Dr. John Burke, Dr. Alfred H. Noehren and Dr. Julius Y. Cohen. At the business session the following members were elected to office: president, Dr. Herbert A. Smith; vice president, Dr. Herriot C. Rooth; secretary, Dr. Julius Richter; treasurer, Dr. J. Sutton Regan; executive council, Dr. Alfred H. Clark, Dr. Michael A. Sullivan, and Dr. Thew Wright.

The second annual golf and sports day of the Buffalo Academy of Medicine and the Erie County Medical Society was held on July 13 at the Meadowbrook Golf and Country Club.

The annual and fourth stated meeting of the Buffalo Academy of Medicine was held at Hotel Statler June 7. The president, Dr. A. H. Aaron, presiding. The following nominees were elected to office for the 1939-1940 term with the exception of the secretary who is elected to serve two years and the trustee for three years: president, Dr. Francis D. Leopold; secretary, Dr. A. Wilmot Jacobsen; assistant secretary, Dr. George B. Slotkin; treasurer, Dr. William F. Jacobs; trustee, Dr. George A. Himmelsbach.

### Kings County

Dr. Alexander L. Andersen, consulting physician at Midwood Hospital who is retiring after thirty years of service at that institution, was given a dinner by the medical staff of the hospital in the Montauk Club, 8th Ave. and Lincoln Place, Brooklyn on June 20.

Dr. Andersen has been practicing in Brooklyn since his graduation from Long Island College Hospital in 1897. He is retiring to Nova Scotia where he was born sixty-five years ago. Dr. Burt D. Harrington, president of the hospital and chairman of the board of directors, presented Dr. Andersen with a golf bag and a dozen golf balls on behalf of the doctors of the hospital.

Dr. Russell S. Fowler, a past president of the Kings County Medical Society and a founder of the American College of Surgeons, expressed disapproval on June 22 of any system of socialized medicine that would entail control by the Federal Government.

Addressing 150 persons at a dinner to Dr. Pasquale J. Imperato, founder of the South Brooklyn Medical Society in the Hotel Granada, Dr. Fowler declared:

"If we must have socialization of medicine, Federal control of the sick, call it what you will, all of which are vital present-day problems, let it be under our own control."

The dinner marked the tenth anniversary of the South Brooklyn society. Among the guests were Supreme Court Justice Albert Conway, Municipal Court Justice George J. Joyce and Dr. Philip I. Nash, president of the Kings County Medical Society. Dr. Frank B. Keher was toastmaster.



### Monroe County

At a meeting on June 14 of the Social Hygiene Committee of the Tuberculosis and Health Association of Monroe County, Dr Robert F Schanz, who is also the chairman of the County Medical Society Social Hygiene Committee, reported that between February 1, 1931, and June, 1939, physician representatives of the County Society and Health Association speakers had addressed a total of 32,129 persons. Fifty-two physicians gave 191 talks. Specially prepared exhibits were shown to a total audience of 59,520 persons.

### New York County

Since the Governor signed the Piper-Hampton bill for medical expense indemnity insurance, it appears that "mushroom groups are springing up all over the city, proffering service to the public under the new law," so the New York *Medical Week* reports, and it warns that "physicians should refuse to tie up with small, privately-operated service groups until their county medical societies have had an opportunity to go into action."

Dr Albert B Sabin, of the Rockefeller Institute for Medical Research, on June 22 was voted the \$1,000 Theobald Smith award and medal by the American Association for the Advancement of Science, meeting at Milwaukee, for initiating a rapid method of pneumonia typing, also for originating a quick bedside test of a pneumonia patient's probable resistance to the disease.

The Manhattan Medical Society and the Central Harlem Medical Society were dissolved at a meeting held May 31, and were merged into a new organization, the Manhattan Central Medical Society. Its officers are Drs Charles C Middleton, president, Harold L Ellis, vice-president, J E Moseley, treasurer, Cyril H Dolly, 129 West 119th Street, secretary, Louis T Wright, chairman of executive committee.

Speaking at the dedicatory exercises in the Hall of Man at the World's Fair on June 17, Mayor LaGuardia made a conditional promise of the fine building at present used by the Appellate Division at Madison Avenue and Twenty-fifth Street as a permanent home for the museum of public health. The condition is that money be found to build the new courthouse at Park Avenue and Thirty-ninth Street. In any case there will be a permanent museum, and a distinguished array of speakers paid tribute to the pioneers who have made this possible and promised great things for the future.

The diphtheria morbidity and mortality rate in New York City may reach the lowest level in its history this year, judging from figures just made public by the New York City Department of Health, which is conducting a campaign to interest mothers in having their babies inoculated against the disease. For the first eighteen weeks of this year, or from January 1 to May 6, there were 282 cases reported with 12 deaths resulting, as against 323 cases and 16 deaths for the same period in 1938.

Last year the diphtheria morbidity and mortality rates in New York City reached the lowest level since statistics have been kept on the

disease. The figures showed only about half the cases and deaths reported for 1937.

### Ontario County

The Ontario County Medical Society held its third quarterly meeting at the Geneva Country Club, Tuesday, July 11. Mr William E Martin, assistant medical counsel of the Medical Society of the State of New York, spoke on "Medical Jurisprudence." A forum on "Child Bearing" was arranged by Drs Deuel, Standish, and Allen.

The business session convened at 5 o'clock, followed by dinner at 6:30 and the scientific session at 7:30.

Dr Ferdinand J Schoeneck, Syracuse obstetrician, addressed the Canandaigua Medical Society on June 8 at a meeting with Dr A W Armstrong, West Lake Road. He spoke for Dr J Wendell Howard, scheduled reader.

Dinner was served to eighteen. Regular sessions were adjourned to September 14.

Dr Alfred M Mead, of Victor, dean of the medical profession of Ontario County, died of a heart attack on July 3 at the age of eighty-two. He had practiced medicine in Victor for fifty-nine years and for the last forty years was town and village health officer. His fiftieth anniversary as a physician, in 1930, was celebrated by the county medical society and by the people of his community. He was a past president of the Ontario County Medical Society and the Canandaigua Medical Society.

### Queens County

Persons from each of the forty-eight states and many foreign countries now have had x-rays made of their chests at the Fair exhibit of the Queens County Medical Society in the Medicine and Public Health Building. Reports are mailed to the visitor's personal physician. The visitors' home countries include England, France, Germany, Italy, Belgium, Poland, Scotland, Ireland, Australia, and South Africa as well as Hawaii, Puerto Rico, the Virgin Islands, Alaska, and the Philippines.

Thousands have cast their x-ray shadows in print to date, under bargain rates of the Queens County Medical Society.

Three hundred and sixty-odd have shown variations from normal they never suspected. Most of the oddities won't do any harm, physicians privately notified the respective owners.

"Quite a few men and women have hearts on their right side," said Mrs Helen Weill, demonstration director. "That means they are entirely reversed inside. Interesting, but no obstacle to health."

"But we discovered that a boy, prone to bronchitis for years, had an upholsterer's button in him."

Doctors still are slightly amazed at a Brooklyn girl who was missing three ribs on one side. She was born that way.

She was in excellent health. The final recommendation was for occasional exercises to keep her shoulders trim.

### St. Lawrence County

The first summer social meeting of the St. Lawrence County Medical Society of the season

was held at the Ogdensburg Country Club on June 15. Luncheon was at one o'clock.

### Seneca County

Members of the Seneca County Medical Society have offered to cooperate with E G O'Connor commissioner of Public Welfare to lower the cost of medical service to indigents in Seneca County the Committee of Medical Economics announces

The committee, consisting of Dr E M Wellbery of Waterloo and Drs Edward Engel and F W Lester of Seneca Falls, by direction of the society has offered the following reduced fees for welfare cases

No operation to cost more than \$100 less 40 per cent. Ether or gas-oxygen anesthesia \$5 for first half hour \$2 50 for each succeeding half hour No anesthetic to cost more than \$10 Local or spinal anesthesia, \$10

Fees for assistants to be \$10 for major operations and \$5 for minor operations Medical cases are to have 20 per cent deducted from the total bill. Mileage charges are offered at twenty cents a mile for one way only instead of the present rate of fifty cents per mile.

It is stipulated that this schedule shall be in full force and effect for one year from the date of its acceptance by Mr O'Connor unless a state wide fee bill shall be adopted jointly by the Medical Society of the State of New York and the State Department of Public Welfare

In such event, the state-wide fee bill will take precedence over the local schedule.

### Westchester County

Dr Charles Rich of Yorktown Heights was honored by his neighbors and fellow townsmen recently by the presentation of a silver tray on behalf of a large number of his patients in commemoration of the doctor's having completed fifty years as a practicing physician in the Township of Yorktown. The doctor was also presented with a large bouquet

### Yates County

Dr Elliot T Bush, of Elmira, was elected president of the Lake Keuka Medical and Surgical Association at its fourth annual session held in June at Keuka College

Dr John A Hatch, of Penn Yan secretary, treasurer for 17 years, asked to be relieved of that position, and was elected vice-president to succeed Dr Bush. Dr Virgil Boeck, of Dundee will replace Dr Hatch as secretary treasurer

The 150 medical men who attended the meeting went on record as being unequivocally opposed to the Wagner Health Bill now before Congress terming it a clumsy attempt to remedy a condition that does not exist.

Calling upon members of the association to demonstrate their strength by writing their congressmen Dr James H Borrell of Buffalo president-elect of the New York State Medical Society told the group that no matter how distasteful the economic angle and the political aspect may be to us we must cease to remain inactive and perhaps use the same weapons as our opponents

### Deaths of New York State Physicians

Name	Age	Medical School	Date of Death	Residence
Frederick M Bauer	80	N Y U	July 4	Whitesboro
Spencer Carleton	65	P & S N Y	July 11	Flushing
Michael A. Cohn	71	P & S Baltimore	July 10	Brooklyn
Glenwood M DeLisser	65	Washington	March 7	Tupper Lake
Jeremiah S Ferguson	68	N Y U	June 30	Malba
W Travis Gibb	76	N Y U	July 6	Manhattan
Louis Heitzmann	75	P & S N Y	July 9	Manhattan
Archibald S Knight	69	Queen's Canada	June 29	Rochester
Oliver J LaFontaine	72	N Y U	June 17	Chaumont
Alfred M. Mead	82	Buffalo	July 3	Victor
Abraham Orenstein	51	L I C	July 12	Manhattan
Victor A. Tyrasinski	49	Buffalo	March 15	Buffalo
Augustin A Wolfe	77	P & S N Y	July 10	Manhattan

# Public Health Notes

J ROSSLYN EARP, L R C P, Dr P H  
New York State Department of Health

## Annual Conference

**T**HE Annual Conference of Health Officers and Public Health Nurses held in New York State is second in importance only to the annual meeting of the American Public Health Association as a gathering of its kind. The registration at Saratoga Springs this year was exactly 1939, one of those coincidences which one finds it difficult to explain but with which all devotees of the goddess of chance are familiar. Last year the total registration was slightly higher but with this exception no annual meeting has ever been so well attended, and without any exception the class of local health officers in training, nearly 100 strong, was the largest on record.

Among the exhibits was included the new collection of colored photographs of smallpox

cases taken during the recent outbreak. Both still and moving pictures were presented. This exhibit will be available for educational purposes throughout the state. There is only one moving picture film and the reproduction of colored films is still a matter of uncertainty. Attempts will be made to reproduce this one so that copies may also be offered for county medical societies' use. The still pictures with a lecture record are also available. The Department can lend a projector and is often able to lend also a reproducing machine where this cannot be obtained locally. The lecture record plays at 33 $\frac{1}{3}$ . Readers interested in securing either of these exhibits for their community should consult their district state health officer regarding the availability at any given time.

## Sulfapyridine in Pneumonia

The relative place of sulfapyridine and of the type of specific antipneumococcus serums was discussed by Dr. Maxwell Finland, of the Thorndyke Memorial Laboratory in Boston. Sulfapyridine, he said, is probably useful in pneumonia due to all types of pneumococci. There are some types in which serum has not yet proved useful including the dangerous Type III pneumonia. Because it has a greater range in activity than serums and because it is probably less dependent upon the intact body mechanism, sulfapyridine is more influential than serum in reducing the death rate from pneumonia. However, the clinical effect of the drug is not always as dramatic as that of adequate specific serum therapy, and numerous toxic effects have been noted, particularly when it has been used over

long periods and in large doses.

As is to be expected from theoretical considerations, the combined use of serum and sulfapyridine is found in practice to be more effective than the use of either agent alone. Dr. Finland recommended that in every case the physician should be prepared to use specific serum by having carried out preliminary pneumococcus typing and by having taken blood cultures before drug therapy is instituted. He offered the tentative recommendation that a combination therapy should be used without delay in that group of cases in which the highest fatality rates are known to occur. In cases where there are relative contraindications either to serum or to sulfapyridine, these can be used in succession if the necessity arises.

## The Epidemiology of Virus Diseases

The similarities and differences in the epidemiologic study of virus and of bacterial diseases were developed in an intensely interesting paper by Professor John E. Gordon, of the Harvard School of Public Health. The fact that the viruses are filtrable and invisible agents limits the application of certain common epidemiologic methods. On the other hand, the epidemiologist is at an advantage through knowing that the restricted distribution of these viruses in nature and their obligate parasitism limit their activities and govern their behavior. Infection must be transmitted from individual to individual. The mode of transmission of each particular virus is generally the same. A few virus diseases are transmitted by direct contact, a large group by droplet infection, and many by the bites of insects. Certain tissues

of the body are more susceptible to virus infections than others, virus diseases of the gastrointestinal tract are few.

Most viruses have distinct host preferences but these are less rigid than we once supposed and when a virus adapts itself to a new host, it may give rise to quite a different disease, as when the virus of psittacosis is transplanted from birds to man. The study of animal reservoirs of human disease becomes especially important. Animal viruses changing from one host to another afford an explanation of epidemics. The possibilities of latent infection in the epidemiology of virus diseases have been too little appreciated. For some diseases prolonged and even permanent latency has been demonstrated. The importance of the carrier in virus diseases remains to be determined by adequate field studies.

In the treatment of virus diseases the present indications are that chemotherapy will be the most important method. Little can be expected from isolation and quarantine in the prevention and spread of this group of diseases. The hope of the future seems to rest in the development of specific methods of prevention through active immunization. It is also im-

portant to study the factors which influence host susceptibility.

It is impossible to do justice to this very fine lecture in a short space. Dr. Gordon's paper is to be printed shortly together with other lectures given during the symposium on virus diseases at Harvard University, June 10 to 17 inclusive.

### Equine Encephalomyelitis

Dr. Karl Meyer, Director of the Hooper Foundation of the University of California, discussed human infections with equine encephalomyelitis, and described the history of the disease in horses. Dr. Meyer was the first to recognize the horse disease when it made its appearance in the San Joaquin Valley in 1930 and was the first to isolate the virus from the horse's brain. Subsequent research shows that the disease has existed in the United States, in fact over the entire American continent for forty or fifty years. It has been identified in brain specimens which were collected in New Jersey as long ago as 1912. Last year there were only 9 states including our own that failed to report a case of this disease. In 11 eastern states the incidence was 3.9 cases per 1,000 animals with a 60.2 per cent fatality. In 28 western states the incidence was 24.8 cases with a fatality of 19.8 per cent. Human cases were not seen before 1931 when they appeared during the height of the epizootic in California. The clinical manifestations in man have been quite similar in the east and in the west. The onset in children is sudden, slower in adults. Irritability and drowsiness accompanied by high fever and headache were noted by the adults. Cases are admitted to the hospital in a semicomatose state with twitchings, convulsions, and cyanosis. The spinal fluid is under pressure and is clear to hazy; counts are variable, frequently polymorphonuclear or mononuclear.

counts predominate. Complete recovery is possible but many cases have definite residual symptoms such as mental changes, tremors, or paralysis.

In diagnosis an attempt should be made to isolate the virus from the blood and even from the spinal fluid by the inoculation of guinea pigs both intracerebrally and intraperitoneally. At autopsy specimens of the central nervous system should be preserved: (a) in buffered 50 per cent glycerine (highest purity Merck) pH 7.0 and promptly held at low temperature; (b) in fixing solutions (10 per cent formalin in salt solution or preferably Dubosque-Brasil Bouin solution). Isolation and typing of the virus is most important in order to establish the extent of the different viruses on the American continent. The sera of recovered cases should be subjected to neutralization tests. California experience would indicate that these antibodies may be present as early as the eighth day and as late as three years after convalescence.

The theory that the disease is mosquito-borne is supported by experimental evidence and by the epidemiology of the equine disease in California. However, no insects carrying the virus in nature have yet been found. Spontaneous infection has been observed in pigeons, ringneck pheasants, and ducks. Therefore, it seems probable that the horse and man are merely accidental links in a much wider chain.

### FOR SHORTER MEDICAL TRAINING

Recent complaints that doctors spend too many years in cultural and medical study inspire Dr. Harry Woodburn Chase, Chancellor of New York University, to suggest that by proper cooperation between the medical school and the arts college it ought to be possible to save two years for the majority of medical students with selection coming in reality as it does now only in theory at the end of the second college year.

Between the arts college and the medical school there has been too little thoughtful cooperation in the attempt to devise a program that will suffice, he says. The time has come when medical school authorities and arts college

authorities can begin more definitely to think about this common trouble.

The general two-year cultural course as a preparation for the actual study of medicine should be sufficiently broad in character so that students who had gone through it could meet rejection by medical school with a minimum of difficulty. Such a course would be primarily nonvocational, with the general values attaching to liberal education itself.

By cooperation of this sort it would be possible for colleges and medical schools jointly to select students, he declares, as intelligently at the end of two years as they can at the end of four, and the students would be just as well rounded people.

# Medicolegal

LORENZ J. BROSAN, ESQ

Counsel, Medical Society of the State of New York

## Advertising by Professional Men

THE Education Law of this State as recently amended provides very strict prohibitions against advertising by physicians. Not only is it a ground for discipline that a physician is guilty of fraud or deceit, but it is also a ground for discipline if a practitioner of medicine indulges in methods of advertising which might be deemed harmless or even ethical when employed in commercial business. The Education Law (Section 1264) now provides among other things as grounds for discipline that a physician "has advertised for patronage by means of handbills, posters, circulars, letters, stereopticon slides, motion pictures, radio, or magazines,"

Very recently a similar statute was challenged in the Courts of a nearby state and its validity was sustained.\*

The proceedings were instituted against a duly registered dentist, charging him with the offense of improperly advertising dental services. The statute under which the defendant was indicted provided that a registered dentist should not advertise in any deceptive or misleading manner and also that a dentist should not make any statements "of a character tending to influence, persuade or induce persons to seek, employ or patronize his business, service, advice or products."

The defendant was indicted on five separate counts, two of which were based upon alleged misleading advertising and three of which were based upon charges that he had, in fact, been guilty of advertising in violation of law, without regard to the misleading nature of such advertising.

The proof in the case centered around a letter which the defendant had sent to a prospective patient. It was on the dentist's stationery, signed by him, and read as follows:

"Dear Mr. \_\_\_\_\_

After being out of active practice for some little time, I am writing to say that I have resumed practice at the above address and am prepared to render dental service of the customary character. I am suggesting to you and other friends the advisability of a checkup and examination of your teeth and am prepared with you to extend reasonable terms of credit to you if desired.

There is much in modern dentistry that can be done painlessly. New systems of anesthetics have come to be used with the exact nature of which I am not familiar but which have been used successfully and satisfactorily. I have such a system available to my use and I feel sure that many of the former experiences may no longer be feared. I have also prepared a dental mouth wash which I am hoping to be able to market. I should like to have you try some of it. It is fairly inexpensive and I am hopeful that it will be found to be so satisfactory that you will be

inclined to substitute it for the preparation you are now using. Hoping that I may be favored with your patronage, I am

Very truly yours,  
\_\_\_\_\_,"

The defendant waived jury trial and the Court found him guilty on all counts and imposed a fine. He took an appeal which directly challenged the constitutionality of the statutory provisions against advertising. The higher Court adopted the position that it was not necessary to determine whether the offending letter was evidence of deceitful or misleading advertising, as there was no question that if the statutory provisions against advertising in and of itself were valid, the defendant had unquestionably violated the law.

In sustaining the law the Appellate Court said in its opinion of affirmance:

"In short the statute purports to deny to a registered dentist, such as the defendant, not merely the use of dishonest or deceptive advertising, but also the right to seek patronage through advertising, in modes deemed harmless and rightful when employed in commercial business. The only question is, whether such a denial offends either the State or the Federal Constitution.

"The Legislature doubtless may regulate advertising even in commercial business, when the public interest requires. In the professions, the right to restrict advertising is broad and clear. Dentistry is undoubtedly a learned profession. Learned professions are characterized by the need of unusual learning, the existence of confidential relations, the adherence to a standard of ethics higher than that of the market place, and in a profession like that of medicine by intimate and delicate personal ministrations.

"Traditionally the learned professions were theology, law and medicine, but some other occupations have climbed, and still others may climb, to the professional plane. Dentistry, a branch of medicine, has done so within modern times." (Citing cases.)

"The granting of a license to practice a profession signifies only attainments warranting entrance into professional life. With some, admission to practice is only the beginning of a lifetime of study, self improvement, and advance in knowledge and skill. With some others, it marks the end of systematic study and of substantial progress in professional competence. The Commonwealth has an interest in attracting to the learned professions men of ability, capable of adorning them, and in enabling such men to survive in competition with others. It has an interest in spreading as widely as possible among its citizens the benefit of the professional services of the most competent practitioners as distinguished from those who barely possess the minimum qualifications for beginning practice.

\* Commonwealth v. Brown 20 NE 2nd 478

at all. It has an interest in leaving its professional men free to improve their professional qualification, without the necessity of devoting time and effort to the competitive pursuit of clients or patients. It has an interest too in freeing its citizens from the pressure of salesmanship in the formation of confidential professional relations.

"The Legislature might find and apparently did find in the case of dentists, that these public interests would be injuriously affected by free competition among practitioners without restraint as to methods. The Legislature might consider that in general practitioners of high character deep learning and great skill are more conscious of vast areas of knowledge not yet explored than of the narrow fields in which they may have attained mastery that they are restrained in speech and careful that promise never outruns performance and that as a class they either are incapable of advancing themselves by brazen self laudation or scorn resort to such means. The Legislature might conclude from human experience that practitioners of scant competence like charlatans and demagogues are likely to make up for want of genuine merit by an expert knowledge of mass psychology

and great skill in appealing to the hopes and emotions of the uninformed and credulous. Advertising practitioners as fast as discovery of their comparative incompetence causes the loss of clients or patients, for a long time can obtain new ones through skillful publicity. It may be that even with complete freedom in advertising practitioners of unusual competence ultimately would succeed and others ultimately would reach the level of their merits but in the meantime thousands if not millions of citizens might receive inferior service in the belief induced by skillful advertising that it was superior. Under the traditional method of professional advancement through the recommendation of satisfied clients or patients progress may be slower but it bears more relation to merit. The Legislature taking the view which has been expressed, might conclude that the regulations were necessary for the protection of public interests.

The restriction and even the prohibition of advertising by members of the learned professions constitute a lawful exercise of the police power and not as has been contended a violation of constitutional provisions protecting liberty and property or discriminatory legislation.

### MAY HIS TRIBE INCREASE

The following is an excerpt from a letter written by a Massachusetts state senator to the physicians of his constituency as reported in the *New England Journal of Medicine*.

In 1936 I directed myself to the following Medical Platform

- 1 The continued betterment of the standard of medical practice
- 2 The control of cultism by a single standard of examination for license to practice
- 3 Opposition to all forms of compulsory health insurance schemes until it can be

shown that they are to the best interests of the profession and public

- 4 The preservation of the sacred right of an individual to go to a physician of his own choice
- 5 The furthering of legislation that will adequately stop loopholes in the existing insurance laws which deprive the physician of his just compensation

I have faithfully kept this pledge and I shall continue to keep it until you and your profession direct otherwise

### THE NEW RECRUITS

During 1938 6,252 physicians were added to the number practicing in the United States, the J.A.M.A. reports.

The largest number in any one state added to the profession was in New York with 1,204. Illinois added 464 and Pennsylvania 452 while South Dakota added 2.

A measurement of the efficiency of medical education is contained in the analysis of the total

number examined 7,454 of whom 6,582 passed and 872 failed.

Nineteen medical schools had no failures before the state licensing boards namely the Universities of California Colorado Yale Indiana Kansas Louisiana State Harvard Wayne Washington Albany Duke Cincinnati Western Reserve Oregon Pittsburgh South Carolina Vanderbilt Vermont and Wisconsin.

# Books

Books for review should be sent to the Book Review Department at 1313 Bedford Avenue, Brooklyn, N. Y. Acknowledgment of receipt will be made in these columns and deemed sufficient notification. Selection for review will be based on merit and the interest to our readers.

## RECEIVED

**Standard Bodyparts Adjustment Guide** Traumatic Injuries, Medical Fees, Evaluations Quarto, illustrated Chicago, Insurance Statistical Service of North America, 1939 Cloth, \$8 including ten years' revision service

**Nursing Through the Years.** By Corinne J Kern Octavo of 340 pages New York, E P Dutton & Co., 1939 Cloth, \$2.50

**Relation of Trauma to New Growths** Medical-Legal Aspects By R. J. Behan, M.D. Octavo of 425 pages Baltimore, Williams & Wilkins Co., 1939 Cloth, \$5

**Pye's Surgical Handicraft.** A Manual of Surgical Manipulations, Minor Surgery, and Other Matters Connected with the Work of House Surgeons and of Surgical Dressers Edited by Hamilton Bailey, F.R.C.S. Eleventh edition Octavo of 512 pages, illustrated Baltimore, Williams & Wilkins Co., 1939 Cloth, \$6

**Life and Letters of Dr. William Beaumont** By Jesse S. Myer, M.D. Octavo of 327 pages, illustrated St. Louis, C. V. Mosby Co., 1939 Cloth, \$5

**Gardiner's Handbook of Skin Diseases** Revised by John Kinnear, M.D. Fourth edition Duodecimo of 239 pages, illustrated Baltimore, Williams & Wilkins Co., 1939 Cloth, \$3.50

**Textbook of Medicine** By various authors Fourth edition edited by J. J. Conybeare,

M.C. Octavo of 1112 pages, illustrated Baltimore, Williams & Wilkins Co., 1939 Cloth, \$6.75

**Laboratory Manual of the Massachusetts General Hospital** By Francis T. Hunter, M.D. Third edition Duodecimo of 119 pages Philadelphia, Lea & Febiger, 1939 Cloth, \$1.75

**Heart Patients** Their Study and Care By S. Calvin Smith, M.D. Octavo of 166 pages Philadelphia, Lea & Febiger, 1939 Cloth, \$2

**Chronic Arthritis** By Robert T. Monroe, M.D. (Reprinted from Oxford Loose-Leaf Medicine.) Edited by Henry A. Christian, M.D. Octavo of 84 pages New York, Oxford University Press, 1939 \$2

**Diseases of the Nose and Throat** By Charles J. Imperatori, M.D. and Herman J. Burman, M.D. Second edition Octavo of 726 pages, illustrated Philadelphia, J. B. Lippincott Co., 1939 Cloth, \$7

**Medical Microbiology** By Kenneth L. Burdon, Ph.D. Octavo of 763 pages, illustrated New York, Macmillan Co., 1939 Cloth, \$4.50

**The New International Clinics** Original Contributions, Clinics, and Evaluated Reviews of Current Advances in the Medical Arts Edited by George M. Piersol, M.D. Volume II, New Series 2 Octavo of 321 pages, illustrated Philadelphia, J. B. Lippincott Co., 1939 Cloth, \$3

## REVIEWED

**A Textbook of Gynecology** By Arthur H. Curtis, M.D. Third edition Octavo of 603 pages, illustrated Philadelphia, W. B. Saunders Company, 1938 Cloth, \$7

Curtis' excellent textbook has been enlarged by adding eight chapters covering anatomy, physiology, and the endocrines. The author states that this third edition is "no longer essentially a record of personal experience," since the text was written only after careful consideration of the literature. One could not

read it, however, without knowing that Curtis wrote it.

Inclusion of the gynecologic aspects of the early months of pregnancy is a good idea. The chapters on gonorrheal disease and pelvic cellulitis are particularly good, and would alone make the book worth while reading and owning. The illustrations by Tom Jones are fine. This model textbook is highly recommended to everyone.

CHARLES A. GORDON

**New and Nonofficial Remedies, 1938** Containing Descriptions of the Articles That Stand Accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1 1938 Duodecimo of 580 pages Chicago, American Medical Association 1938 Cloth, \$1.50

In this book the Council on Pharmacy and Chemistry lists and describes the medicinal preparations that it has found acceptable for general use by the medical profession

New substances described in this volume are sulfanilamide and protamine zinc insulin with the accepted brands The proved value of these new additions to the physician's armamentarium bids fair to make the past year a milestone in therapeutic progress The Council is to be congratulated on the promptness with which it evaluated these drugs and established standards for their adequate control From the first the Council warned against using sulfanilamide in untried combinations. The sad tragedy of the deaths from the rashly introduced elixir of sulfanilamide-massengill starkly emphasizes the value of such a body as the Council to the medical profession and the pharmaceutical manufacturers as well as to the public Of course this potential value cannot become effective as long as those concerned refuse to follow the Council in the use of new remedies

Other noteworthy new drugs that appear in the 1938 volume are avertin with amylene hydrate, vinethene pontocaine hydrochloride, basal, general and local anesthetics, respectively, novatropine and syntropan, synthetic mydriatics

Physicians who wish to know why a given proprietary is not described in *New and Nonofficial Remedies, 1938* will find the "Bibliographical Index to Proprietary and Unofficial Articles Not Included in NNR" of much value In this section (in the back of the book) are given references to published articles dealing with preparations that have not been accepted. These include references to the Reports of the Council, to Reports of the A.M.A. Chemical Laboratory, and

to articles that have appeared in the JOURNAL.

**Insomnia Its Causes and Treatment.** By John A P Millet M D Duodecimo of 195 pages New York Greenberg Publisher, 1938 Cloth \$1 75

This has been written by a practical psychiatrist, understandingly informative for the general public and profitable for most practitioners as well Factual data in reference to sleep and its disturbances are interestingly presented without exhausting detail Fallacious lay methods for respite of insomnia are refuted and drugless therapy properly indicated The psychologic basis for correct understanding and therapy of individual cases is skillfully outlined, and is scientifically sound The material is sympathetic, personal, and in terms within the understanding of most readers The author's views in the closing chapter regarding present day civilization as the main contributor to faulty sleep habits are ably expounded The physician may wholeheartedly recommend this work to intelligent insomniacs

IRVING M DERBY

**Clinics on Secondary Gastro-Intestinal Disorders, Reciprocal Relationships.** By Julius Friedenwald M D Theodore H Morrison M D and Samuel Morrison M D Octavo of 251 pages Baltimore William Wood & Company, 1938 Cloth \$3

This book fills a long-felt want in the studies made of the reciprocal relationship between the gastrointestinal viscera and other organs and systems In unrivaled style it discusses the symptoms, their effects, and both near and distant results and manifestations By volumes such as these, the complex and intricate 'tie ups' between the numerous divisions of the human organism are clearly exemplified The reading of this book proves conclusively that a pure specialist is as incongruous and impossible as is a doctor without a stethoscope or a thermometer

BENJAMIN M. BERNSTEIN



**Glaister's Medical Jurisprudence and Toxicology** Sixth edition edited by John Glaister, M D Octavo of 747 pages, illustrated Baltimore, William Wood & Company, 1938 Cloth, \$8

The sixth edition of this remarkable book is certainly complete and marvelously well illustrated. A great deal of space is devoted to wounds in their medicolegal relations, covering personal identity in all its phases, including historical interest.

The section on toxicology is covered adequately, followed by chapters on photomicrographs, arsenic pigmentation and its effects, blood spectra, serologic tests, and historical cross-sections of hairs in various conditions.

The famous "Ruxton Case" from its medicolegal aspects is of special interest to criminologists.

Although many works on a similar subject have come from British authors during the past few years, this one fills a place heretofore not covered by others. The book is well written, clearly printed, and will be of value both to the student and practitioner of forensic medicine.

S INGRAM HYRKIN

**Internal Medicine Its Theory and Practice in Contributions by American Authors** Edited by John H. Musser, M D Third edition Quarto of 1428 pages, illustrated Philadelphia, Lea & Febiger, 1938 Cloth, \$10

Advance in the practice of internal medicine during the past few years has been so rapid that much revision has been required in this third edition of this work. As the editor states in the preface, it would be impossible to enumerate the additions that have been incorporated in this edition. The newest and accepted changes in diagnosis and treatment are mentioned—newer terms and diagnoses are given for many existing conditions not previously named according to etiology. Newer concepts of blood dyscrasias, of infections of the system, of vitamins and nutrition are presented. This revision contains 140 more pages than the second edition, covering the

present advancement in internal medicine. It is a valuable reference book as well as one for study.

HENRY M. MOSES

**Medicine for Nurses** By C. Bruce Perry, M D Duodecimo of 211 pages Baltimore, William Wood & Company, 1938 Cloth, \$2

This little volume, summarizing briefly more common medical disorders, presents the obvious advantages and disadvantages of a handbook. Its aim is to prepare nurses for final examinations, hence it is almost purely a "cram-book."

ANDREW M. BABEY

**Biography of the Unborn** By Margaret S. Gilbert Octavo of 132 pages, illustrated Baltimore, The Williams & Wilkins Company, 1938 Cloth, \$1.75

Human development is of interest to both layman and scientist. It reveals the close relationship between man and the lower animals, and to the physician it explains some of the malformations and abnormalities of a mature age.

Technical treatises present information in special terminology unintelligible to the layman. The present tale of human development is presented in a chronological pattern of nine calendar months—an intimate picture of an unknown chapter in the life of every individual—the astounding process of becoming a human being.

During the first month we grow from an invisible egg to an embryo six mm long, increasing fifty times in size and eight thousand times in weight.

During the second month the length of the embryo increases six times and its weight increases five-hundredfold. And so on until the ninth month the evolution of the egg is described and pictured in language easily understood by the average layman.

The text contains a glossary and references to standard works on embryology.

To anyone interested in this branch of science, the book is recommended as well written, informative, and authentic.

F. B. DOYLE

**The Troubled Mind** A Study of Nervous and Mental Illnesses By C. S. Bluemel M D Octavo of 520 pages Baltimore Williams & Wilkins Company, 1938 Cloth \$3.50

In reading this book, one is left with a troubled mind in the attempt to evaluate its usefulness. As its subtitle indicates, it alleges to be a study of nervous and mental illnesses. In this the author has succeeded perhaps too well. It really reminds one of a card index of various manifestations of abnormal behavior. The psychopath and the social misfit have considerable attention from the author.

One is impressed with the knowledge that the author apparently possesses but wishes that he might have arranged the subject matter in a more systematic manner. His own classifications differ materially from those that are generally accepted. The author might have explained his own choice of classification. Furthermore he has tried to make the book appeal to medical students as well as lay people, and this is a task that rarely meets with success.

It is the hope of the reviewer that some day, at his leisure the author will write a more comprehensive and more systematic book on the subject, for there is reason to believe that he has much experience and information in the field that will prove of help to the student in psychopathology. IRVING J SANDS

**The Practice of Medicine.** By Jonathan C. Meakins M D Second edition Quarto of 1413 pages illustrated St Louis The C V Mosby Company 1938 Cloth \$12.50

That this *Practice of Medicine* has gone so quickly into its second edition (first edition 1936) is evidence of its favorable reception by the profession.

It presents outstanding characteristics the valued opinions of an experienced clinician with rich physiologic training the 529 figures that constitute an unusual gallery of photographs illustrative of disease manifestations, and the introductory remarks to the general divisions of the book that deal with the pathologico-physiology of the tracts under consideration.

Additions and deletions have been made here and there, and an account of appendicitis has been added. In all, 100 pages of additional material are presented, the book now comprising 1400 pages.

Sulfanilamide is well considered on pp 1199-1200.

The accounts of rheumatoid arthritis and osteoarthritis afford excellent contrasting clinical pictures of these two varieties of chronic nonsuppurative joint disease.

Nephrosis becomes the 'nephrotic syndrome,' as with Henry Christian and many others. Classification is not stressed, nor could we expect it in view of the opinion that 'practically all nephritis is at some stage a glomerulonephritis.'

This volume is invaluable as a reference book, and will often be consulted. The only unfavorable feature is its weight, which is seven and one half pounds. This appears unavoidable, as heavy glazed paper is necessary for the illustrations. FRANK BETHEL CROSS

**Diseases of the Chest and the Principles of Physical Diagnosis.** By George W. Norris M D and H. R. M. Landis M D Sixth edition Octavo of 1019 pages illustrated Philadelphia W. B. Saunders Company 1938 Cloth \$10

This standard work has been thoroughly revised and continues to be one of the best on the subjects treated. The portions dealing with bronchial asthma, bronchiectasis, lung abscess and cystic disease, coronary disease, and others have been completely rewritten. Dr. Thomas M. McMillan has rewritten the chapter on the electrocardiograph, and has made a concise and satisfactory account. He has also contributed a chapter dealing with the x-ray diagnosis of the heart and great vessels. Clinical methods based upon the examiner's sight, touch, and hearing are emphasized as they are in the previous editions. Many excellent illustrations add to the value of the work, which is too extensive to attempt to review in detail.

W. E. McCOLLON

**Handbook of Practical Bacteriology** A Guide to Bacteriological Laboratory Work By T J Mackie, M D, and J E McCartney, M D Fifth edition Duodecimo of 586 pages Baltimore, William Wood & Company, 1938 Cloth, \$4

This compact volume is in no sense a textbook of bacteriology For the laboratory technician it ought to be of value since it gives useful information regarding the isolation of cultures and many useful methods for the cultivation of microorganisms The chapters dealing with the pathogenic microorganisms contain a large amount of information pertaining to this group of bacteria, but the material is presented in such a condensed fashion that its usefulness is limited to those who already have some bacteriologic experience The book as a guide to the medical school graduate who wishes to do some bacteriology should be of distinct help

MORRIS L RAKIETEN

**Plastic Surgery** By Arthur J Barsky, M D Octavo of 355 pages, illustrated Philadelphia, W B Saunders Company, 1938 Cloth, \$5 75

Dr Barsky accomplishes his aim of being practical in this new book on plastic surgery Through his own experience and that of his colleagues he has selected from the great mass of plastic procedures those that he personally feels are best fitted to the problems he attacks It will be well for the general surgeon, who merely turns to this book as a reference for the detailed steps of a particular operation, to at least read the first four chapters on general principles

As everyone doing plastic surgery knows, a great deal of the art depends on minute attention to detail The mere mechanical procedures, no matter how well done, will not produce a successful result unless the underlying principles of tissue physiology are carefully regarded

Another point well stressed by the author is the mental attitude of the patient to his deformity The plastic surgeon is urged to keep this in mind in estimating the real from the imaginary

lesion before operation Some patients are merely hypersensitive, others are actually psychotic Where there is question of the latter he wisely advises psychiatric consultation before surgery

This light, attractive book, including an index and 432 excellent illustrations, may well be recommended, more particularly to the general surgeon doing plastic work The specialist will find an excellent bibliography at the end of each chapter

WILLIAM H FIELD

**Illustrated Primer on Fractures** Prepared by the Special Exhibit Committee on Fractures in Cooperation with the Committee on Scientific Exhibit of the American Medical Association Fourth edition Octavo of 95 pages, illustrated Chicago, American Medical Association, 1938 Cloth

The fourth edition of this illustrated primer contains in its scant 95 pages a brief but informative description of the modern and accepted treatment of various fractures The printing has been done on one side of the page, the obverse side being left blank for notations by the reader Illustrations are in outline only, and are convincingly descriptive of pathology and treatment, as the case may be In spite of the purely outline character of this book, space has been left for the brief consideration of equipment required and the principles of immobilization and transportation Much information is given, clearly presented, and surprisingly inclusive

JOSEPH RAPHAEL

**Fevers for Nurses** By Gerald E Breen, M D Duodecimo of 199 pages, illustrated Baltimore, William Wood & Company, 1938 Cloth, \$2

In this small volume of less than 200 pages, Breen presents the salient features of common fevers for the instruction of nurses It has the advantage of being compact and brief with emphasis on bedside care and warning signals of impending complications

ANDREW M BABEY

**A Textbook of Histology** Functional Significance of Cells and Intercellular Substances By E V Cowdry Second edition Quarto of 600 pages illustrated Philadelphia Lea & Febiger 1938 Cloth \$7

The second edition has been revised for the student entering medical school, taking nothing for granted as to his preliminary education. It should prove an excellent laboratory guide because of its simplicity and abundance of illustrations. The book has been written with the purpose of helping the student connect histology with gross anatomy. The author stresses the functional significance of cells and the intercellular substances with their normal variations. The chapters on endocrines and digestive system have been rewritten.

This volume will be found valuable because it has been compiled by a master mind in cytology.

NATHAN REIBSTEIN

**The Etiology of Trachoma.** By Louis A Julianelle. Octavo of 248 pages illustrated New York The Commonwealth Fund 1938 Cloth \$3.25

Probably trachoma is one of the most studied diseases in the medical armamentarium. This treatise on the etiology is but a brief outline of the vast research done in Julianelle's laboratory.

The book, however, leaves no phase of this exhaustive study unconsidered. The etiologic factors which he describes in full detail throughout its life cycle seem without a doubt the true causative agent of this widespread scourge. The beautiful colored plates of the various stages, and the manner in which the elementary bodies escape from the epithelial cells would seem to curb any uncertainty in the most stubborn "doubting Thomas".

The publication of this book as a climax to the great work done and published by Dr Julianelle marks the goal of centuries of groping in the unknown for the cause of one of the world's worst enemies. The review of the literature on trachoma is extremely worth while.

EVERET H WOOD

**The Pneumonias.** By Hobart A Reimann M D Octavo of 381 pages illustrated Philadelphia W B Saunders Company 1938 Cloth \$5.50

Dr Reimann has presented us with an elaborate treatise on pneumonia, in which are discussed more than fifty specific forms of the disease. Of special interest to every physician is the lucid and masterful presentation of recent advances in our knowledge regarding the specific treatment of certain forms of pneumonia. The author has stressed especially the etiologic, clinical, and roentgenographic features of this disease.

A careful analysis of recent important contributions are included in the work. This volume will be of great value to every practitioner, as it bears throughout the stamp of a master clinician.

B B GELFAND

**The Vitamins and Their Clinical Applications.** A brief manual by Dr W Stepp Doz Dr Kühnau and Dr H Schroeder Translated by Herman A H Bouman, M.D. Quarto of 173 pages Milwaukee The Vitamin Products Company 1938 Cloth, \$4.50

This manual takes up the vitamins in alphabetical order. The subject matter of each vitamin complex follows in general the following outline: history, chemistry, occurrence, determination, requirement of man, the associated physiology and pathology, the commercial preparations, and clinical application.

The appendix presents an outline form for each vitamin under the headings 1 Apparent Function, 2 Possible Results of Deficiency, and 3 Results of Absence.

The excellent and complete bibliography including references of 1937 is given in the appendix for each of the vitamins as considered under the above outline. For example under vitamin G, the heading, Results of Absence, Eye Disorders is the nineteenth item and all references to eye disorders related to vitamin G are grouped in the bibliography under Vitamin G, number 19. This affords an orderly and valuable means of reference to the original articles.

PAUL C ESCHWEILER

# Officers of County Societies

TOTAL MEMBERSHIP—AUGUST 1, 1939—16,769

County	President	Secretary	Treasurer
Albany	J S Lyons	Albany	F E Vosburgh
Allegany	P L Morrison	Bolivar	R W Blaisdell
Bronx	G E Milani	Bronx	J A Keller
Broome	C L Pope	Binghamton	E R Dickson
Cattaraugus	T J Holmlund	Franklinville	L E Reimann
Cayuga	L F O'Neill	Auburn	R J Thomas
Chautauqua	DeF W Buckmaster	Jam'town	F J Pfisterer
Chemung	R Breguet	Elmira	S L Larson
Chenango	D U Gould	Sherburne	J H Stewart
Clinton	E Wessell	Plattsburg	K M Clough
Columbia	L J Early	Hudson	H C Galster
Cortland	M R French	Cortland	B R Parsons
Delaware	W H F Newman	Stamford	O Q Flint
Dutchess	S L Smith	Poughkeepsie	H P Carpenter
Erie	C E Wertz	Buffalo	R L Scott
Essex	V R McCasland	Moriah	H J Harris
Franklin	E M Austin	Tupper Lake	D C H Van Dyke
Fulton	J A Shannon	Johnstown	D M McMartin
Genesee	G H Knoll	LeRoy	P J Di Natale
Greene	G L Branch	Catskill	M H Atkinson
Herkimer	G A Burgin	Little Falls	A L Fagan
Jefferson	J E McAskill	Watertown	W F Smith
Kings	P I Nash	Brooklyn	M J Dattelbaum
Lewis	E O Boggs	Lowville	H Stein
Livingston	H F Hulbert	Dansville	A J Townsend
Madison	E Freshman	Oneida	E W Carpenter
Monroe	C V Costello	Rochester	J J Rooney
Montgomery	L H Finch	Amsterdam	R Conant
Nassau	E Calvelli	Port Washington	E K Horton
New York	H Fox	N Y City	K Dwight
Niagara	H U Cramer	Lockport	F W Barry
Oneida	P P Gregory	Rome	H D MacFarland
Onondaga	L E Sutton	Syracuse	A C Hofmann
Ontario	A W Armstrong	Canandaigua	D A Eiseline
Orange	H F Morrison	Tuxedo Park	E C Waterbury
Orleans	A W Jackson	Albion	J A Elson
Oswego	K W Jarvis	Oswego	J B Ringland
Otsego	J H Powers	Cooperstown	F E Bolt
Putnam	H W Miller	Brewster	A Vanderburgh
Queens	J Wrana	Jamaica	D J Swan
Rensselaer	W T Shields, Jr	Troy	J F Russell
Richmond	F M Schwerd	Princes Bay	C J Becker
Rockland	J Pomerantz	Spring Valley	W New Brighton
St. Lawrence	J E Mecker	Ogdensburg	D Miltimore
Saratoga	R B Post	Ballston Spa	L T McNulty
Schenectady	J R Schermerhorn	Sch'n't'dy	W J Maby
Schoharie	C L Olendorf	Cobleskill	C E Wiedenman
Schuyler	C W Schmidt	Burdett	LeR Becker
Seneca	C B Bacon	Watertown	O A Allen
Steuben	D R. Haggerty	Arkport	D B Walker
Suffolk	W W Gardner	Patchogue	R J Shafer
Sullivan	H Golembe	Liberty	G A Sillman
Tioga	C S Johnson	Spencer	D S Payne
Tompkins	H J Wilson	Ithaca	I N Peterson
Ulster	H L Rakov	Kingston	W Wilson
Warren	D M Sawyer	Glens Falls	C B Van Gaasbeek
Washington	W B Nuzzo	Hartford	J S Parker
Wayne	E S Platt	Red Creek	C A Prescott
Westchester	R T B Todd	Tarrytown	J L Davis
Wyoming	G G Davis	Arcade	J G Morrissey
Yates	J P MacDowell	Dundee	O T Ghent
			G C Hatch

# NEW YORK STATE JOURNAL *of* MEDICINE

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## *Editorial*

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### Why Special Favors?

In this country, as in every other where there is a large governing bureaucracy, the taxpayers must constantly be on the alert to forestall bureaucratic attempts to obtain special privileges which are denied the rest of the citizenry. Government employees in America are on the whole better paid and enjoy more security in their tenure of jobs than workers in private employment. Yet until recently they paid no income tax and they are constantly on the lookout for special perquisites for which their fellow citizens must pay.

A recent attempt at such a grab was embodied in a bill to furnish free medical and dental care to officers of the Foreign Service and their dependents. Just why this special group of State Department employees should be favored above their co-workers was not specified. As President Roosevelt observed in vetoing the measure, it would have singled out about 6,500 individuals for special favors for no good reason and involved setting up dispensaries and bed facilities wherever those employees were gathered in any number. "There seems no reason why such facilities should be extended to officers and employees of the Foreign Service within the State Department without including all the other employees within the State Department. If this is done for the State Department it logically should be done for the employees of other departments. I do not believe that Congress wishes to start the practice of extending such assistance to a large class of civilian employees."

The President states the issue clearly and concisely. It is not the duty of a government constituted like ours to supply medical care to an employed group which is well able to meet the ordinary costs of illness. Congress has no right to use funds raised by taxation on

all the people to provide benefits for a special few who are well able to take care of themselves

### Foregone Failure

To all but the lay enthusiasts of the Farm Security Administration and the unfortunates whose lives it directs, the failure of the North Dakota Farmers Mutual Aid Corporation's medical plan was a foregone conclusion. No agency, lay or medical, voluntary or compulsory, can provide a complete, high-grade health service for \$2 a family per month.

Out of the monthly subscription fees collected from members, the Corporation allotted 51 per cent to physicians rendering service, 37 per cent to hospitals, 8 per cent to dentists, and 4 per cent to nurses and pharmacists. In the eight months in which the plan was in operation, however, the demand for services was so great—with 40 per cent of the subscribers taking advantage of membership privileges—that the dues collected were far below the expense incurred. As a result, in spite of the modesty of the professional fee schedule, physicians received only about 60 per cent of their bills.

In admitting the failure of his plan, Walter Maddock, State Director of the FSA and president of the Farmers Mutual Aid Corporation, blamed the dissatisfaction of participating physicians with the financial returns. He cannot deny, however, that there was good reason for dissatisfaction. Would not Mr. Maddock and his fellow administrators be dissatisfied if they received only 60 per cent of their salaries at the end of a week's work? Doctors are people, too, and must pay rent, feed their children, and buy clothes like the rest of the human race.

The trouble with the Farmers Mutual Aid Corporation plan was that it was born of desire rather than knowledge, and guided by enthusiasm rather than experience. Its fond parents took a road that clearly led to failure but had neither the knowledge nor the experience to foresee what their destination was.

### The A.M.A. and Court Action

By the time this reaches our readers they will be aware of the recent action of the District of Columbia Federal Court in dismissing the antitrust indictment against the American Medical Association. At the present time, we are unaware whether or not the Attorney General's department intends to continue its efforts to convict the American Medical Association of illegalities in its conduct. We hope second thought will prevail, and the absurd charges will be dropped.

We shall not discuss any of the matters at issue here, but one fact should be cried from the house tops—namely, that neither the A.M.A. nor its constituent Medical Society of the State of New York has ever opposed sincere efforts toward any plans to bring medical care to the needy. Sincere efforts to hurdle the barrier that separates the lower income earning groups from seeking and receiving medical care have, as most physicians know, been the subject of intense study and research for years. We are gradually evolving plans and procedures to meet conditions in our communities. Neither court decisions, nor pressure from the Federal Attorney General's department shall stampede us into acceptance of anything less than what our studies show would be to the best interest of the public we serve.

We are not unduly elated by the Court decision, but on the contrary we are saddened by the thought that any agency of Government could entertain the idea that the A.M.A. functions "to restrain trade" or "to boycott," or "employs coercion" either directly or indirectly against hospitals or individuals.

### Sulfapyridine Therapy

There are now on record the results obtained from sulfapyridine therapy of pneumococccic pneumonia in a sufficiently large number of cases so that some definite evaluation can be made concerning this form of treatment. The earlier reports were in the main too vague and based upon only a small number of cases. Recent observations, such as that of Pepper, Flippin, Schwartz, and Lockwood,<sup>1</sup> wherein are detailed the studies made on 400 typed cases, establish certain factors as guides in the future therapy of the pneumonias.

One of these is outstanding in all reports—sulfapyridine has reduced the mortality from pneumonia due to the pneumococcus. Preceding the use of this drug, the death rate from this disease at the Henry Ford Hospital was 37 per cent, since its use, this has fallen to 8 per cent.<sup>2</sup> The figure of Pepper, *et al*, is 7 per cent for their total number of cases. However, on closer analysis the mortality percentage for Type I was only 5.8 while for Type III it was 16.4. These observers feel that the reason for the high figures in Type III pneumonia is that this organism is more frequently the causative agent in senile or debilitated patients.

Dosage can also be considered as fairly well established. Following the initial intake of 2 Gm. by mouth, 1 Gm. every four hours is administered until a total of 25 Gm. has been reached. Thus

<sup>1</sup> Pepper, D. S., Flippin, H. F., Schwartz, L., and Lockwood, J. S. *Am. J. Med. Sc.* 198:22 (July) 1939.

<sup>2</sup> Smith, F. J., and Needles, R. J.: *Am. J. Med. Sc.* 198:19 (July) 1939.



should be diminished to 15 Gm for elderly people and where any renal involvement exists, because of the possible damage that sulfapyridine may have on the kidneys. Toxic reactions following the use of this drug are limited mainly to nausea and vomiting, although dermatitis, acute hemolytic anemia, and psychosis, among other effects, have been noted. Dehydration is to be particularly guarded against because of the danger of crystallization of the sulfapyridine in the urinary tract with the production of concretions.

From all data available at present, it appears that this form of therapy should be instituted immediately the diagnosis of pneumonia is made. It therefore has the advantage over serum therapy in that there is no need to wait for the production of sputum and the report of typing of the organism. The sharp drop in temperature within thirty-six hours, the marked reduction in the toxemia, and the general improvement in the patient's condition are so striking that for the present we can consider the question of the effect of sulfapyridine on resolution of the pulmonary consolidation an academic one.

### Implantation of Cortical Hormone in Addison's Disease

In the treatment of Addison's disease, the index of adequacy is the establishment and maintenance of a normal blood pressure and plasma volume, positive sodium and chloride balance, a normal concentration of plasma electrolytes, and the optimum in body weight. In some instances this can be achieved by sodium chloride therapy, but most patients require the hormone of the adrenal cortex injected daily. This latter factor is not only of considerable expense to the patient but inconveniences him as well.

Thorn, Howard, Emerson, and Firor,<sup>1</sup> after determining the daily maintenance dose of crystalline adrenal cortical hormone for 6 patients having Addison's disease, discontinued the intramuscular injections and instead implanted subcutaneously under local anesthesia, pellets of the hormone weighing from 125 to 150 mg each. In this manner, they were able to secure a constant rate of absorption which is estimated at 0.25 to 0.35 mg a day. The improvement in the condition of these patients was striking, and continued over a prolonged period, thus eliminating the daily injection and effecting a great economy. In all cases constant mineral intake was provided in the diet and in 5 the sodium chloride therapy was continued. Thorn and his associates consider this technic of adminis-

<sup>1</sup> Thorn G. W., Howard R. P., Emerson J. K., and Firor, W. M. *Johns Hopkins Hosp. Bull.* 64:339 (May) 1939.

tration of crystalline adrenal cortical hormone as one of practical applicability, since it is occasioned by no untoward reactions and is simple to perform

### Current Comment

"The physician's profession can never be characterized by a high devotion to science and human care if it is reduced to a mechanical status under fixed wages and governed by a maze of legal restrictions."—From the July 2 issue of the *Globe Democrat*

"The disturbing feature of many articles that one finds in current periodicals criticizing medical justice in general and the conduct of doctors in particular is that the public is not getting a square deal. Our form of government depends for its existence upon an informed public opinion. Presuming that the people are given all the facts, their collective decision will most often prove to be right.

"The public is now being prepared to come to a conclusion upon how its medical needs are to be met.

'It is obvious that there is a desperate need for complete and more accurate information in the hands of the public. If their judgment is to be sound and reasoned they must be told just how changes in medical practice will affect them, what they stand to lose and to gain as patients and as citizens. They need to know what it has meant to them that medical education has been improved, hospital services standardized, specialists regulated as to qualifications—that these things were done by physicians themselves under their own compulsion and at their own expense.'—*The Detroit Medical News* of recent date brings home a most important point.

"The unexamined life, said Socrates, 'is unfit to be lived by man.' This is the virtue of liberty and the ground on

which we may best justify our belief in it, that it tolerates error in order to serve the truth. By bringing men face to face with their opponents, forcing them to listen and learn and mend their ideas, they cease to be children and savages and begin to live like civilized men. Then only is freedom a reality, when men may voice their opinions because they must examine their opinions.

"—Walter Lippmann discusses 'The Indispensable Opposition' in a current issue of the *Atlantic Monthly*

"It is impossible to manage one's life properly without some knowledge of ways of the human body. We cannot obtain this knowledge from single textbooks, nor from medical specialists. It comes from much reading of many books, or from those physicians who still have the courage to practice general medicine." —Dr Alexis Carrel asks "Do You Know How to Live?" in the August issue of *The Reader's Digest*

"There is a common saying that although God gives us our relatives, we are free to choose our friends. Good medical care is exactly like genuine friendship between two people. It can't exist unless the patient is free to choose his doctor. True, this may not be so important when we merely need a specialist to do a specific repair job, but it is just as true as it ever was when we are dealing with the general practitioner, the family physician."—The words of Ralph T. B. Todd, M.D., president of the Medical Society of the County of Westchester

"Facing certain ambitions, we know that respect cannot be purchased by concessions"—A statement made by the Frenchman, General Gamelin, applicable to the situations faced by organized medicine as well as those confronting the nations of Europe

. . .

"The best way to save democracy is to save it first at home," claims Senator Shipstead, in the *New York Times* of July 2

. . .

"The recent suggestion to perpetuate the Fair's Medical and Public Health Exhibit as a permanent museum is an excellent idea, well worth promulgation. With the establishment of courses by eminent members of the profession in medicine and hygiene, such an institution would furnish enlightenment and education for the layman in matters of importance with which he should be acquainted not only for his own welfare but also for the good of the community"—A writer to the *New York Times* of July 5 has made the above suggestion

## The 1939 MEDICAL DIRECTORY of New York, New Jersey, and Connecticut

### LAST CALL FOR CHANGES!

Compilation of the MEDICAL DIRECTORY is still in progress for publication in December, 1939. The deadline for changes in hospital affiliations and Medical Society memberships passed, as previously announced, on August 1; but alterations can still be made in

Addresses  
Office Hours  
Telephone Numbers

The deadline for these is September 1. No changes at all can be accepted after that date.

PUBLICATION COMMITTEE

## SCIENTIFIC EXHIBIT



Application blanks for space in the Scientific Exhibit at the Annual Meeting to be held in New York City, May 6, 7, 8, and 9, 1940, may be obtained from William A. Krieger, M D, Chairman, Scientific Exhibits Committee, 103 Hooker Avenue, Poughkeepsie, New York

# COMPENSATION FOR EYE INJURIES

## Its Past, Present, and Future in New York State

ALBERT C. SNELL, M D, Rochester, New York

THERE are some interesting episodes in the history of the compensation law of New York State in relation to eye injuries. These episodes tell the story of the court contentions over the evaluation of partial losses of vision, and they show the development of the law through revisions and its present status for evaluating such losses. A careful study of the method of evaluating visual losses, a method evolved through these episodes, will reveal the early defects in the law and the later improvements. A study of the present statute shows that it is basically correct, but that the fundamental principles relating to vision are erroneously interpreted, it will show that a correct interpretation of these principles would place the evaluation of visual disabilities in this state on a basis in harmony with the scientific method adopted by many other states. It is the purpose of this paper primarily to place on record a brief summary of some of these apposite historical episodes so that these may be available to the ophthalmologists of the state, and secondarily to call attention to a method for evaluating visual disabilities, which would establish a much-desired unity of method in all of the states.

The first general Workmen's Compensation Act was passed in 1913. In this statute there is embodied the correct concept that the loss of use of important members or organs of the body shall be equivalent to the loss of such members. The administration of this first general statute revealed certain important omissions relative to visual disabilities and difficulties in adjudication. It showed that while ample provision for evaluating the complete loss of one or of both eyes had been made, provisions for evaluating

permanent *partial* disability were limited to the complete loss of one eye, that there was no specific provision for evaluating the *proportionate* permanent partial loss of use of an eye, or for the loss of binocular single vision, and it failed to establish the point of industrial blindness. However, there was one general paragraph entitled "Other Cases." In this paragraph provision was made in a vague way for adjusting disabilities that might not be included in the specific provisions of the statute. Under its provisions such disabilities as could not be adjusted on the functional basis, that is, loss of use, might be adjusted on an entirely different and more indefinite basis, that is, the economic one of loss of wages or "wage-earning capacity." The difficulties encountered in administering the law under the general and indefinite provision of this vague paragraph led to the revisions of the statute in 1917 and in 1920. The revision of 1917 provided for the first omission, that of evaluating permanent partial loss of use of an eye, and the revision of 1920, for the second and the third omissions, the loss of binocular single vision and the establishment of the point of industrial blindness, which was fixed at 80 per cent loss of vision.

The principles underlying the conceptions embodied in the original statutes and in these three important amendments to the statutes were derived largely from the writings of Magnus, Würdemann, and Hansell. During this period of the drafting of the statute and of the revisions, from 1912 to 1920, the contributions of these men, the most outstanding authorities in Europe and America, were consulted. Professor Magnus, a German, had written a book on Visual Economics,

which was printed in 1894. He had previously written articles, also in German, on this subject. With the consent and cooperation of Professor Magnus, Dr Würdemann, of Milwaukee and Seattle, translated Professor Magnus' book in 1902, made additions to the text, and brought the subject matter up-to-date. Dr Hansell contributed an outstanding article on the same subject, which appeared in the *Annals of Ophthalmology* in 1900. In these contributions there is presented not only a method for computing proportionate losses of vision or loss of earning ability, but also there is established the point of industrial blindness to which all three are in agreement. This was found to be 80 per cent loss of vision for the average industrial worker. They also agreed that the Snellen notation of 20/200 acuity represented this point of 80 per cent loss. These facts taken from these sources had been presented to the legislators, and knowledge of them must have had weight with those who drafted and those who revised the compensation statutes, for this concept that a loss of 80 per cent of vision should be equivalent to the loss of the eye was embodied in the statute and in all revisions to date. That these legislators also comprehended that the concept of *functional ability* of the eye was fundamental, is evident from the terms used in the statutes. The words *disabilities* and *loss of use* are ever present. *Ability* and *use* denote *function* when applied to the eye as well as to other organs.

According to the authorities named above, *acuity notations* do not express fractional parts of the function of vision, nor do they express the efficiency of earning ability. It will be noted from the above that these authors held that 20/200 acuity, not 20/100, expressed 80 per cent loss of vision. In 1920, when there was inserted in the revised statute a provision that designated the point of industrial blindness, those revising the statute did not definitely fix any acuity notation as the point of industrial blindness, but did employ the following language: "Compensation for loss of binocular *vision* or

for eighty percentum or more of the *vision* of an eye shall be the same as for loss of the eye."

Attention is called to the fact that in the above quotation, in the early statutes, and in all revisions to date, the words "vision" or "sight" are used. In no place do these statutes mention *acuity* of vision as a basis for determining compensation or of evaluating visual disabilities. Obviously, the drafters of the statutes understood that vision was a function and that acuity notations did not express fractional parts of this function. The writer is convinced that if the legislators had thought that acuity notations did express equivalent fractions of vision, the word *acuity* would have appeared somewhere in the many revised statutes. However, although the inference seems plain that the establishment of the point of industrial blindness and the concept of proportional functional losses were obtained from the above authorities, who did not regard acuity notations as fractions of vision, and that the drafters of the statutes understood these principles, the administrators of the statute, that is, the Industrial Board, later found it convenient to interpret partial permanent loss of vision by the erroneous method of using acuity notations as fractional parts of vision, a practice still followed by the Industrial Board.

Since the statute provided that 80 per cent shall be a total loss of *use* and that "compensation for permanent partial loss or loss of use of an eye may be for proportionate loss," many ophthalmologists assumed that they should determine percentage losses of vision as the statute required, using their knowledge of physiologic function and of mathematics. But, since there was stipulated no definite rule, and as there was no statutory schedule designating the percentage of losses, up to 1926 much confusion prevailed and unequal awards were being made for identical losses in vision. Ophthalmologists who were making reports on eye injuries computed proportional losses by different methods, which resulted in a substantial difference in evaluation. This

lack of a uniform method was unfair to injured employees receiving the lower awards. It was obvious that there should be established some uniform and reasonable method for evaluating visual losses in harmony with the statute, which required that partial losses of vision should be computed on the basis of proportionate losses.

The question at issue after the revision of 1920 was solely the interpretation of acuity notations in determining proportional partial losses. In 1920 the revised statute properly recognized that the loss of binocular single vision, or of 80 per cent or more of vision, was equivalent to the total loss of use of an eye. The only way open for settling the question of evaluating acuity was a recourse to the courts. This procedure was agreeable to those holding divergent views and it was decided to institute a friendly suit whenever a suitable case was found. The object was to establish a fair, just, reasonable, and uniform method for evaluating partial visual disabilities. It was agreed that when a case was found in which only visual acuity was involved, such would be regarded as a suitable one to submit to the court. The issue to be tried was not to be complicated by the involvement of the disturbance of any other element or essential function of vision.

Such a case was presented in the *Struble v Vacuum Oil Company* case. The essential facts in this case to which all examiners agreed were the following: that there was a visual acuity of 20/50, that there was no loss or disturbance to form field or to binocular single vision that there was present in this case a nebulous scar of the cornea situated centrally over the pupillary area and covering two thirds of its undilated area, and that no other structure was involved. Thus, in this case, only the question of the proper interpretation of acuity notations in their relation to the proportionate loss of vision was presented. No other question was involved. Therefore, the issue was purposely and properly limited to the question of whether or not acuity notations are expressions of equivalent

fractional parts of vision, as contended by the State Industrial Board, or whether the acuity notations or symbols are lacking in the essential nature or characteristics of fractions, and, therefore, do not express an equivalent proportional part of vision, the contention of the defendants in this case. Voluminous testimony, arguments, and briefs were presented by each side. For those who may be interested in the reasoning and in the opinion of the court over this issue, excerpts from the proceedings of the court are quoted at some length. The opinion of this court, which follows, presents a clear and accurate exposition of the mathematic nature of acuity symbols (notations). In the opinion in the *Struble v Vacuum Oil Company*, 158 App Div 20, 3rd Department, decided in September, 1924, the court stated as follows:

He (Dr Conboy) maintains that 20/50 is a common fraction that it expresses the fractional vision now remaining in claimant's right eye that the claimant's eye is two-fifths normal or 60 per cent blind.

If the apparent numerators in the Snellen symbols be regarded as representing the stand and object of the standard visual angle and the denominators as representing the patient's object or angle, the former will be found to bear that relation to the latter, which the symbols, treated as fractions, would indicate. Thus, in 20/30 the standard object or angle is two-thirds the patient's object or angle, in 20/40 it is one half in 20/50 it is two-fifths. It will be seen however that the denominators in the various symbols when used as fractions denote units such as objects and angles which are never the same. The denominators then can not subdivide the constant unit of perfect sight or the constant unit of blindness. Consequently the symbols cannot be fractions of sight or blindness.

Dr Conboy's theory that the Snellen symbols express fractional sight necessarily depends upon the assumption that normal vision is to a patient's vision as the standard visual angle is to the patient's visual angle. The assumption has no support in testimony or in reason. Manifestly it cannot be that a 20/40 patient, whose visual angle is twice the standard angle, is half blind while a 20/80 patient whose angle is three times the standard is only two-thirds blind. If the former, having a visual angle of

ten minutes, as contrasted with the five-minute standard, has progressed toward blindness one-half the total distance, then logically the latter, who has progressed a further distance of five minutes to fifteen minutes, has then arrived at the goal of total blindness. It is apparent that the assumption leads to absurdities which contradict and disprove the theory.

"It must be remembered that the testimony given related wholly to the subject of acuity of central vision. No other subject was considered. Moreover, the only testimony in the case to the effect that the Snellen symbols constituted fractions of the unit of sight was a dogmatic assertion which begged the question. We conclude that the Industrial Board were therefore in error when upon the proof given they found that the claimant had lost 60 per cent of vision of his right eye."

The court reiterated a like opinion in this case in three different suits.\* However, although all the ophthalmologists had examined this claimant during the first suit and in their original reports had stated that no other elements of vision were involved, later in the litigation the Board obtained a change in testimony from some witnesses to the effect that other elements of vision in addition to acuity were involved. This obscured the issue and on this ground the court finally made an award for 60 per cent loss of vision.

In a later case, that of *Prezkop v Rampo Ajax Corporation*, 214 App Div 512, in which the same contention over the interpretation of acuity notations was the issue, the court held to its original opinion. It stated as follows:

"The meaning of the Snellen symbols and their uses as representing a measure of an element of sight, namely, central visual acuity, was very ably discussed by Mr. Justice Kellogg in *Struble v Vacuum Oil Co* (supra). It was there pointed out that while the Snellen notations have the appearance of fractions, 'it will be seen, however, that the denominators, in the various symbols, when used as fractions, denote units, such as objects and angles, which are never the same. The denominators, then, cannot subdivide the constant unit of perfect sight or the constant

unit of blindness. Consequently, the symbols cannot be fractions of sight or blindness.'"

In 1926 another celebrated case, *DeCaprio v General Electric*, 244 N Y 500, was carried through the successive courts, being finally adjudicated by the appellate division, the court of last resort in the state. In brief, the issue here was similar to that presented in the previously mentioned cases. Dr. Acheson, the up-state ophthalmologist for the Industrial Board, found the best acuity in this case to be 20/100 following an industrial eye injury. It is of interest to follow the legal opinions and decision of the court, abstracts of which follow. After the Industrial Board had made an award of 100 per cent, the Appellate Division of the Supreme Court on appeal stated:

"The Industrial Board in making the award assumed that the Snellen symbol 20/100 signified the retention of the 20 per centum of vision. The assumption that 20/100 Snellen has the significance of a common fraction, or that the Workmen's Compensation Law by virtue of the section quoted, Sec. 15, Subd. 3, has stamped 20/100 Snellen, as industrial blindness, has no support in reason or in authority." (*Struble v Vacuum Oil Co*, 210 App Div 344, S C 214 id 844.)

"The question in the case was whether an award for percentage loss of use of an eye could rest upon testimony to the effect that the Snellen symbols, such as '20/100' constituted common fraction of the unit of vision and we held that such an interpretation was a dogmatic assertion which led to absurdities which contradicted and disproved the theory. we reiterated our views on that subject."

For the record, it is stated here that DeCaprio was examined by the writer and also by Dr. Bedell. We both, making independent examinations and at different times, found DeCaprio to be a malingerer. Visual acuity by malingering tests was found to be 20/30-20/50. However, Dr. Acheson, an employee of the state, formulating an opinion on a simple, crude test, testified that DeCaprio was not a malingerer and that 20/100 was 20 per cent vision.

From the facts presented in all the cases

\* *Struble v Vacuum Oil Co*, 210 App Div 344.  
*Struble v Vacuum Oil Co*, 214 App Div 844.  
*Final Appeal Vacuum Oil Co*, 217 App Div 411-413.

quoted above and from what follows, it is evident that the appeal from the decision which was taken by the Industrial Board in this last case was made on a technicality of the law and not on the point at issue, that relating to proportionate visual losses. As will be seen, this became evident as the litigation progressed. At the beginning of this contest, as stated previously, there was an expressed desire on the part of all interested parties to establish a correct method for computing proportionate visual losses that could be supported by scientific methods. There was at first no disposition to settle the issue on legalistic technicalities. However, as the weight of medical evidence and the unanimous opinion of the Appellate Court, four times reiterated, failed to support the contention of the Industrial Board, they abandoned the original question at issue in their desire to win a legal victory. This is evident to a nonlegal mind from the method of procedure in the final appeal in the DeCaprio case 217 App Div 411-413. In this case the Supreme Court, Appellate Division stated "Dr Acheson has interpreted Snellen notations as a common fraction in the manner condemned by this court in the Struble Case." All concurred, and an award, made by the State Industrial Board for total loss of use, was reversed. Then followed the final appeal from this decision based, as one may see from the following, on a legal "question of fact," and not on the merit of the original and agreed upon point at issue. In the final matter of the claim of DeCaprio v General Electric Co, 218 App Div 310, reversed, decided March 1, 1927, the Court of Appeals, the court of last resort, stated as follows:

"Until the Legislature or State Industrial Board establishes a proper standard method of determining loss of visual efficiency it must remain one of fact in proceedings under the Workmen's Compensation Law.

In this appeal the following question was certified:

Was there any evidence in the record upon which the State Industrial Board had jurisdiction

to make a finding of fact of permanent loss of 80 per cent of useful vision of the right eye and following that an award for the total loss of useful vision of said right eye?"

The opinion of the Court of Appeals, the highest court in this state, as reported in 244 N Y 500, is as follows:

The question is whether any standard method of determining loss of visual efficiency has been so established as to make all others erroneous as *matter of law* or whether a difference of opinion may exist among experts as to the proper interpretation of recognized tests.

We are unable to say that Dr Acheson's interpretation of the Snellen test is erroneous as *matter of law* although he finds 80 percentage of loss of vision when the American Medical Association would read his formula as indicating only 51.1 percentage of loss of vision.

Until the Legislature or the State Industrial Board establishes a proper standard method of determining the question it must remain one of fact. The weight of authority doubtless inclines to the rules adopted by the American Medical Association.

The order appealed from should be reversed and the award of the State Industrial Board affirmed, with costs in this court and in the Appellate Division and the question certified answered in the affirmative.

It is very evident from a review of all the opinions quoted that the courts have consistently held that to interpret acuity notations as having the "quality of fractions" is erroneous and cannot be supported by reason or authority. Nevertheless, the highest court of the state has held that the Industrial Board was the trier of the facts and as a '*matter of law*' the courts could not compel the Board to adopt any particular method for computing loss of vision, however reasonable and correct, nor could they compel the Board to abandon any method no matter how unreasonable, contradictory, or erroneous it might be. The courts have held that the Industrial Board is dogmatic and in error in following its present method, but that under the present law it may compute visual losses by whatever method it chooses until the legislature changes the statute.



From a purely scientific and medical point of view the courts of New York have upheld the fact that acuity notations are not fractions and are not expressions of equivalent fractional values of useful vision from any approach whatever, whether mathematic, economic, or physiologic. And they have held that in computing or evaluating proportional losses of vision "the weight of authority doubtless inclines to the rules adopted by the American Medical Association."

The present status of compensation for eye injuries in New York State can be stated briefly. The authority to dictate a method of computation rests with the Industrial Board. The opinion of any ophthalmologist in regard to percentage loss of vision has no compelling or modifying force. The function of the examining ophthalmologist is to determine the best visual acuity, the condition of binocular single vision, and in exceptional cases the field, but it is not required nor is it desired that he compute the percentage loss, this being automatically fixed by the dictates of the Board.

New York is the only state in the Union that computes the amount of compensation by the erroneous method of regarding acuity notations as having the quality of fractions. This method places a high percentage disability for minor disturbances, for example, a visual acuity of 20/25 is regarded as a 20 per cent loss of vision. Such interpretations are having the effect today of excluding unjustly many employees from obtaining employment or advancement, and it causes gross inequalities in evaluation among the states for identical disabilities. For the sake of justice and fairness it is desirable that a scientific method for evaluating visual disabilities shall prevail that shall be uniform in all the states.

Twenty-three states have adopted some definite method for computing visual disabilities. Eleven of these states have employed the basic principles laid down in the report of the American Medical Association, although not following it in every detail. It is most desirable that New York State should adjust its present

arbitrary method in line with the consensus of opinion of the legislative bodies of other states and with that of the great majority of ophthalmologists. Ophthalmologists are not primarily interested in the amount of the compensation awards for eye injuries. But they are deeply interested in the establishment in all states of an accurate, just, and reasonable method which will remove the present confusing lack of unity and which is applicable to the compensation problems of all the states including New York.

Such a method is the one that has been adopted by the American Medical Association and approved by this section of the state medical society after years of painstaking study and investigation. This method after eleven years of critical scrutiny by the legal and medical professions, by legislators, and by nearly all who have given the problem serious consideration, has received almost universal approval. Contrary to the opinion expressed by some that the American Medical Association method establishes an unfairly low amount of compensation and is not applicable to the New York statute, this method does *not* establish the amount of awards, it does not establish a limit to the amount of compensation that may be awarded for ocular disability. It establishes only a percentage of functional loss for these disabilities. The medical profession in this report does not state that a permanent ocular disability terminates in 160 weeks. It holds that such disability has only life's expectant span as a limit. The economic problem of establishing the rate or the amount of compensation awards properly resides in legislative authority, which may be many times more liberal than at present by increasing the number of weeks' disability on which compensation is now generally based. Furthermore, the American Medical Association method is applicable to and consistent with the New York State statute, which states "Compensation for partial permanent loss of use of a member (the eye being one such member) may be for proportionate loss." Although the statute thus provides that

visual losses are to be computed on the basis of proportionate loss or loss of *use*—a proportionate loss of function—the present method employed by the Board does not thus compute permanent partial loss. Functional losses are not expressed proportionately when acuity notations are interpreted as fractions. Definite proportional functional disabilities have been established by the American Medical Association method, which computes for every increase in the detail of the visual angle of one minute a visual efficiency of 83.625 per cent of what it was before such increase. Thus, by this method every like degree of injury is found to have the same proportionate loss. The method is consistent with the New York statute, since it provides for computing losses on a percentage basis for functional losses. This method by which every like degree of loss of vision is evaluated by exactly the same percentage is reasonable, just, and mathematically correct. Its general use will establish a uniform scientific method for all the states of the Union.

### Summary

Some historical episodes in the development of the compensation laws of New York are presented for the record. The revisions of the statute are correct in principle but these principles are erroneously interpreted by the Industrial Board.

The courts of New York State have consistently upheld the fact that acuity notations are not fractions of vision or fractional equivalents and have not reversed their opinion on this point.

The Board did obtain a sustaining decision on purely technical, legalistic grounds, on a "question of law" and not on the merit of principle involved.

The interpretation of the statute by the Board is inconsistent with a proper mathematic computation for partial permanent ocular disabilities.

New York State is the only one in the Union to persist in an erroneous, unreasonable, unscientific method for determining visual losses by regarding acuity notations as fractions of vision.

The method for determining functional visual efficiency as adopted by the American Medical Association has received the approval of the great majority of ophthalmologists and of many legislative bodies. After eleven years of critical scrutiny it is regarded as an accurate and scientific solution to the problem of evaluating visual disabilities. Its acceptance and use would place the evaluation of visual disabilities in New York State on an equitable, rational, and scientific basis in line with the majority of other states.

53 South Fitzhugh Street

### Discussion

Dr David F. Gillette, *Syracuse, New York*—You all must appreciate Dr. Snell's scientific approach to visual economics. He pioneered here and as a member of a special committee helped to develop the American Medical Association's table of percentage visual losses.

The New York State legislators have not adopted this table but have decreed that 80 per cent loss of vision of an eye, or the loss of binocular single vision, is equivalent to industrial blindness of the eye.

The New York State courts decided that the Industrial Board has power to make its own interpretations provided they stay within this law.

The New York State Industrial Board adheres to its erroneous policy of reducing Snellen symbols to common fractions, hence it designates 20/100 as  $1/5$  or 80 per cent loss of vision industrial blindness, hence total loss.

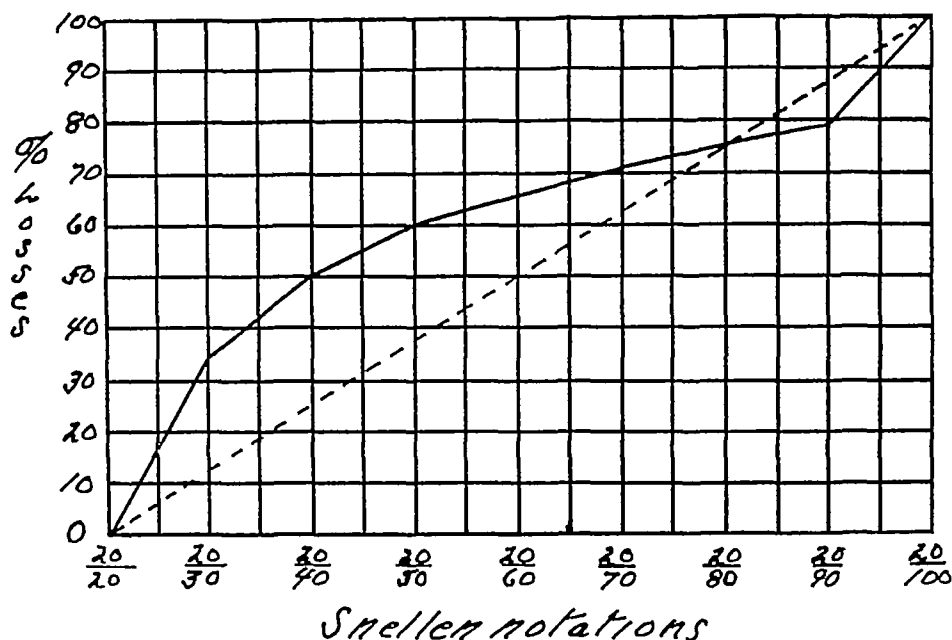
It also says 20/20 or 1 is the normal standard of vision. It does not recognize the fact that many individuals enjoy 20/15 or even 20/10 vision. Hence a visual loss of 100% is not compensable.

I like to think that the method in vogue was adopted so as to give the injured party a liberal award for loss sustained. However laudable the purpose it does not justify a loose unscientific and inequitable system for determining this award.

The curved full line of the following graph represents the visual losses as awarded by the New York State Industrial Board, developed from their arbitrary standard of 20/20 up to 20/100 and interpreted by it as 80 per cent loss hence industrial blindness or total loss of the eye according to the law.

This graph shows the rapid rise in percentage

## New York State Industrial Board Awards



losses in the lower, as compared with those in the higher brackets. We all know that few are inconvenienced with 20/30 vision, while above 20/50 practically all are incapacitated for fine, close work.

The dash line is the base line developed from the zero loss at 20/20 to the arbitrary "industrial blindness" or total loss at 20/100.

It is assumed that the tests are made with the proper sized test letters sufficiently lighted (20 foot candles). The test letters should measure as follows: 20/20 = 8.727 mm, 20/30 = 13.09 mm, 20/40 = 17.452 mm, 20/50 = 21.819 mm, 20/60 = 26.181 mm, 20/70 = 30.544 mm, 20/80 = 34.904 mm, 20/90 = 39.267 mm, 20/100 = 43.635 mm.

I believe the compensation for the higher partial and total permanent loss of an eye is inadequate, but this does not warrant the present erroneous method of determining that award.

The percentage of permanent loss of vision should be determined as scientifically as is possible, and the amount of award adjusted to the scheme adopted.

The better method is to compute the percentage losses from the change in the size of the visual angle, which increases 2.5 inches with each additional ten feet of the Snellen denominator.

I think we should work for the adoption of a scientific and equitable scheme, to justly com-

pensate the injured for any permanent visual loss sustained.

Dr. Anton S. Schneider, Plattsburg, New York—I feel honored to be asked to discuss Dr. Snell's paper and herewith express my thanks to him.

With a topic so ably presented by him, there seems little for me to add.

The hearing commissioner in my section accepts interpretation of visual acuity and percentages of loss of visual acuity as set forth by the American Medical Association, and does not consider fractions as indicating acuity values.

The consideration only of visual acuity by the compensation commissioner has given hardship to the injured employee, especially in those cases where trauma has produced a localized, sclerosed, or blind area in the fundus peripheral to the macula. Central visual acuity is normal, and still the individual working on a machine has an area of complete blindness that may lead to a serious injury if he were working with sharp tools. Computation for loss or diminution of binocular vision because of injury, is left out of consideration in the majority of cases.

Injuries to the accessory muscles of the eye, although specifically asked about by the C5 form of report, seem to receive little attention. The main question the commissioner is concerned with is twofold—how much vision has the worker

lost and how much time has he lost from work?

Injuries to ocular muscles occur by fragments of steel etc. and still with normal visual acuity compensation for the injury is almost nil

Extraocular injuries—and I am not referring to facial or lid injuries but to extraglobe so to speak or intraorbital injuries—receive little or no consideration as long as visual acuity remains as it was previous to the injury Visual acuity

previous to the injury is one grave fact that we must consider and in the majority of cases depends upon the statement of the injured employee that he had normal vision before the injury Where are we with cases of congenital amblyopia in injured employees?

Again I thank Dr Snell for the privilege of discussing his paper

### DAY-OLD ORANGE JUICE IS O.K. D

Because vitamin C is readily destroyed by oxidation, it was commonly thought for several years that it would be good practice to consume citrus juices as soon as possible after their preparation. In an investigation of the vitamin C content of orange juice performed in the laboratories of the Bureau of Home Economics of the U S Department of Agriculture (Daniel Esther P Kennedy Mary H and Munsell Hazel E Relative Vitamin C Content of Orange and Tomato Juices Determined Chemically and Biologically *J Home Econ* 28 470 [Sept ] 1938) a loss of about 10 per cent of the vitamin C of freshly extracted orange juice that had stood about six hours in a covered container in a refrigerator was observed It was thought that the time of standing determined the extent of loss, and the following warning appeared in a boxed statement of practical significance of results at the end of the report Since juices lose their scurvy preventing power on standing the common household routine of preparing juice in the evening for breakfast should not be practiced. More recently however we are told in the *J.A.M.A.* Munsell and her collaborators (McElroy Olive E Munsell Hazel E

and Stenbarger, Mabel C Ascorbic Acid Content of Tomatoes as Affected by Home Canning and Subsequent Storage, and of Tomato Juice and Fresh Orange Juice as Affected by Refrigeration *ibid* 31 325 [May] 1939) have repeated the observations on orange juice using an improved technic and have found no appreciable loss of ascorbic acid (vitamin C) in orange juice stored for twenty four hours in loosely covered glass jars in a refrigerator at temperatures of approximately 40 to 45 F i.e., safe refrigeration temperatures. It is reported that there was no difference in the results when the juice was strained through cheesecloth or a wire sieve.

Evidence obtained from experiments performed at the Connecticut Agricultural Experiment Station, at the request of the Council on Foods (*The Journal* June 10 p 2420) also shows that fresh orange juice retains as much as 97.6 per cent of its vitamin C activity after storage for twenty four hours in a loosely stoppered flask in a refrigerator

It is thus clear that fresh orange juice loses little vitamin C potency on standing in the refrigerator if the juice is kept in a covered container to avoid access to air

### ANOTHER IMPORTANT KIND OF TRAVEL-CHECK

A check-up on health and how to maintain it should be a part of everyone's preparation for touring just as much as an overhauling of the automobile or a study of road conditions advises Benlah France, R.N. New York, in *Hygieia The Health Magazine* One can leave the conveyance, if it needs to be repaired and travel on in some other way she says But the human machine one cannot leave behind him. When the body needs overhauling, its owner must stay with it. Each person who plans a trip therefore should visit a doctor for a thorough physical check-up The doctor's advice should be heeded regarding the individual's special physical limitations

### THE WATCHFUL EYE

Alone at dusk upon the peak  
He sees the world go by  
And on the humble and the weak  
He keeps a watchful eye.  
Where sickness and where fevers fight  
In homes that know despair  
Faint hearts grow strong and faces light  
To see him standing there.  
To all mankind his gift he gives,  
To mighty men and small  
A modest uncrowned king he lives,  
The greatest of them all.

—Quoted by Dr Joseph E Green in a presidential address before the Mississippi State Medical Association

# THE RATIONALE AND RESULTS OF MAGGOT THERAPY IN CHRONIC OSTEOMYELITIS

JOSEPH BUCHMAN, M D , F A C S , New York City

(From the Service of Dr Samuel Kleinberg, Hospital for Joint Diseases, New York City)

**M**ANY waters of knowledge have flown over the dam of ignorance since Baer's provisional explanation of the rationale of maggot therapy. An extensive literature, the result of careful clinical and experimental studies, has sprung up since the introduction of this method in 1927. Our own experiences and observations date from the beginning of 1930 and are based on a careful and intensive study and treatment of over 200 parts of the most extensive types of chronic osteomyelitis, in addition to a number of laboratory as well as clinical experiments with this mode of therapy. As a result of all of these observations, there is now an accumulated fund of knowledge and results that explain the rationale of this new approach in the therapy of this dread affliction, and that demonstrate its results.

Before entering into an exposition of the why and wherefore of maggot therapy, it would not be amiss to review for a moment the local pathologic condition in chronic osteomyelitis. One is confronted by a diseased bone that has undergone changes during the processes of destruction and of ineffectual attempts at healing. The bone is irregular in shape as a result of involucrum formation. The cortex is thickened, the medullary canal is usually obliterated, and there are areas of condensation and rarefaction. The condensations are evidences of dense bony scar tissue and its incidental poor circulation, while the rarefactions are indications of enclosed areas of pus, or of infected or indolent granulation tissue. In addition, there may be present one or more sequestra. Over and above all this is a poorly nourished, thickened, scarred, fibrous periosteum. This is

usually accompanied by cloaca and sinus formations. The soft tissue cloak of such a bone is usually in part a densely cicatrized, poorly nourished mantle, resulting from long-standing stasis of blood and lymph, incidental to the chronic inflammatory process.

To effect a cure of such a diseased part, one must return it to its normal state, or at least as close to its normal state as possible. This necessitates the reduction of the scar tissue to a minimum, the restoration of the form and structure of the bone and soft tissues, and the re-establishment of the blood and lymph supply to a maximum. The truth of this assertion is demonstrated over and over again by the absence of recurrences of the osteomyelitic process in only those parts that have returned to the relatively normal state, both clinically and roentgenographically.

To obtain effectual healing, complete excision of diseased tissues, in so far as is technically possible, is essential, for any residual focus of diseased tissue remaining within the bone will in time become the site of a recurrence of the osteomyelitic process. As a result of this reasoning, the saucerization operation has been devised and practiced extensively. To be effective, this operation must be very thorough. It has been our practice to excise all of the diseased tissues technically possible, and to extend this excision to the normal medullary canal or metaphyseal area above and below the diseased area without elevating the periosteum beyond the area to be excised, without injuring epiphyseal plates, entering joints, or destroying any important anatomic structure.

Subsequent to such an operative pro-

*Read at the Annual Meeting of the Medical Society of the State of New York,  
New York City, May 10, 1938*

cedure one is faced with the problem of filling the rigid walled cavity with healthy granulation tissue from the bottom up. This ordinarily occurs satisfactorily up to a certain point only. Then the wound becomes indolent and further healing ceases or is unduly prolonged, resulting in a persistence of the wound and in the formation of sinuses. This is due to the fibrosis of the granulation tissue at the periphery of the cavity and the shutting off of the blood supply incidental to scar formation. It therefore becomes evident that to get satisfactory healing one must consider the time factor in the filling of the bone cavity before the blood supply is shut off by scarification.

It is consequently apparent from the above considerations that any system of therapy of chronic osteomyelitis must provide for a thorough surgical removal of diseased tissues, and a rapid and even filling of the wound with healthy granulation tissue before cicatrization occurs. In addition, it should also provide for the removal of sloughing tissues and discharges from the wound and for some means of disinfection of the wound. Maggot therapy is the only system of treatment in vogue at this time that fulfills all of the above criteria in an efficient manner.

Maggot therapy is predicated on a most extensive surgical procedure, as indicated above. Maggots are no substitutes for the scalpel, gouge, and mallet, for we have shown and Maseritz<sup>5</sup> has confirmed experimentally that maggots have no effect whatsoever on the inorganic fraction of bone. All dead bone must therefore be removed surgically. Furthermore, maggots are ineffectual in sinuses, hence the necessity for wide saucerization of the wound.

In the presence of proper surgery, maggots become effective in many ways. Clinically, it has been noted that a wound under the influence of maggots undergoes striking changes. Soon after the introduction of this therapeutic agent there is a profuse exudate into the wound which persists during the lifetime of the

maggots. In addition, there is a change in the reaction of the wound from faintly acid to faintly alkaline. This is followed by a disappearance of all sloughing tissue and its replacement by healthy granulation tissue, which rapidly fills the wound. Bacterial counts reveal a rapid diminution of the number of microorganisms in the wound. All of these changes are intimately bound up with the life processes of the maggots.

Entomologic studies have shown that the digestive processes of maggots consist of two phases: the first is extra and the second is intra alimentary. The conformation of the buccal cavity and that of the alimentary tract are such as to permit the consumption of liquid food only. Maggots, therefore, prepare their food by secreting a proteolytic enzyme, which acts on dead protein matter in the medium to break it down to a liquid state, and then they thrive upon it. The result of this process in an osteomyelitic wound is to cleanse it thoroughly of slough and necrotic material.

Another characteristic of maggots that is of utmost importance to wounds housing them is their continuous crawling about. This results in irritation, which is sufficiently minimal to stimulate and induce rapid formation of granulation tissue. This characteristic is to my mind the most important of all, for no other system of therapy nor any substitute for maggots supplies this physical stimulus, which plays a most essential part in the filling of the wound cavity with healthy granulations before cicatrization occurs.

Another response on the part of the host to this physical irritation is to produce a profuse exudate, which aids in washing microorganisms out of the crevices of the wound. This fluid, together with the excess liquid medium resulting from the proteolytic activity of maggots, is drained off in the toilet of the wound. The ultimate result is a thorough washing of the wound and physical removal of bacteria and debris.

Maggots have, in addition, a bactericidal action on their medium. Robinson

and Norwood,<sup>12</sup> of the Bureau of Entomology of the United States Department of Agriculture, have demonstrated that microorganisms consumed by maggots with their food are destroyed within their alimentary tracts. More recently, S W Simmons,<sup>13</sup> of the same bureau, demonstrated a potent bactericidal substance in the excreta of maggots for seven species of bacteria, including staphylococcus aureus, streptococcus hemolyticus, and Clostridium welchii.

In addition to the above-described influences that maggots exert on wounds, there is still another in the form of a substance known as allantoin. This substance, which was found in the excreta of maggots by Robinson, acts in some way to stimulate biologically the formation of granulation tissue.

Summarizing the above, it therefore becomes evident that the use of maggots in the treatment of chronic osteomyelitic wounds or for that matter any infected wound encompasses (1) the use of subminimal physical irritation to hasten the rapid formation of healthy granulation tissue and to cause the production of a profuse exudate to aid in the physical washing of the wound, (2) enzymatic digestion of necrotic tissue to cleanse the wound and eliminate the medium upon which bacteria grow, and to aid in the washing of the wound through the excess liquefaction, (3) chemical inhibition of bacterial growth by changing the medium from acid to alkaline, (4) bactericidal action by producing a substance to destroy microorganisms in the alimentary tracts and in the surrounding medium, and finally, (5) biologic stimulation of growth through the formation of allantoin. No other system of therapy presents such an armada of forces for the repair of wounds. One should further realize that in utilizing this method, one merely avails himself of one of Mother Nature's perfected methods for the removal of dead animal matter and its infecting microorganisms.

In a discussion of results of therapy of chronic osteomyelitis, one must be restrained by the medical maxim "Once

osteomyelitis, always osteomyelitis." We have all seen instances of recurrences after fifteen to twenty years or even longer periods of quiescence. Because of this we shall avoid the term "end results." A study of a number of recurrent cases treated by other methods that have come under my observation revealed the interesting fact that they all showed roentgenographic evidences of long-standing disease and extensive bone scarring, as indicated by areas of rarefaction and condensation and obliteration of the medullary canal. On operative exploration I have found these areas to be markedly eburnated, enclosing small foci of infected or indolent granulation tissue, which form the basis for the recurrences. The lack of blood supply favors the persistence of these foci for long periods of time. On the basis of such roentgenographic findings as enumerated above, one can prognosticate recurrences. The corollary is also true, namely, that a bone which was the subject of an osteomyelitic process and which underwent a reformation so that there is a minimum of scarring, as evidenced by a patent medullary canal and an absence of areas of rarefaction and condensation, will not in all probability be the subject of recurrences.

With these considerations in mind we find that subsequent to maggot therapy there is a minimum of scarring of bony as well as of soft tissues. As will be demonstrated in the following case reports, roentgenologic studies over a number of years show a reformation of the involved bones and an approach to an almost normal appearance. The shape and contour of the bone becomes more normal than previously and the cortex becomes reformed and regains its usual thickness. The medullary canal becomes normal in size and remains patent. The calcific deposit is even throughout, as indicated by the absence of areas of rarefaction and condensation. Occasionally there may remain defects incidental to extensive surgical removal of bone. This must, however, be differentiated from the rarefied and washed-

out appearance, indicative of residual infection

Examination of the soft tissues subsequent to healing by maggot therapy also reveals a minimum of scarring and adhesions, with resultant minimal limitation of motion of adjacent joints. Many of the scars are not depressed and are freely movable on the underlying bone.

In addition to these roentgenographic and clinical evidences of satisfactory healing, I have found in several instances which necessitated further operative interferences for one reason or another, additional indications of satisfactory repair. The areas revealed in the gross appearance a normal looking bone richly supplied with newly formed blood vessels. Furthermore, there was an absence of the small enclosed foci of indolent looking granulation tissues, which one sees so constantly in osteomyelitic lesions. Nor was there any evidence of any eburnation or extreme porosis, which is similarly characteristic of this lesion.

It is because of these appearances that I have entertained the hope that recurrences will be greatly diminished in comparison to those cases that have been subjected to other methods of therapy. I shall refrain from citing figures, for my period of observation is too short and the number of cases too small to reach an accurate conclusion. I have, however, very definite impressions that are tempered by a critical outlook and an enforced conservatism. These are, namely (1) by far the great majority of wounds can be filled to the point of epithelization in eight to twelve weeks, (2) the process of epithelization may at times be prolonged. This has in a measure been overcome by pinch grafting and subsequent skin plastics, (3) cases with extensive sinus formations that cannot be widely opened will probably recur in the form of soft tissue abscess formations, while the bone may remain healed and uninvolved, (4) cases that were subjected to an insufficient saucerization operation, be it because of timidity on the part of the surgeon or

because of technical difficulties, will probably recur, and (5) after excluding the cases included under the preceding two headings, I find to all practical purposes no recurrences during my period of observation. This group forms about two-thirds of my cases and it is these cases that I feel have been permanently relieved by maggot therapy in so far as the treated lesions are affected.

The logic of this method of therapy is patent and its results are as I have indicated, the most satisfactory ones obtainable at the present time. The advantages of this method are evident, but its disadvantages are such as to have discouraged its use in the hands of some, and to have led to the search of substitutes on the part of others.

The great but surmountable deterrent in the use of maggot therapy is its expense. Commercially produced sterile maggots when they were available were so expensive as to have completely discouraged, in so far as I can ascertain, its further production. This difficulty can be readily obviated by an efficient hospital laboratory where maggot breeding can be simple and inexpensive. The greatest and most unavoidable expense is the relatively long period of hospitalization of the patient, which usually extends over a period of about three months. It is, however, counterbalanced by the much shortened and more comfortable convalescence, superior and more permanent results, and almost complete elimination of the stiffness in the adjacent joints which one sees in other methods of therapy.

Maggot therapy necessitates the most painstaking daily care and observation on the part of the surgeon. Maggot therapy does not consist of the mere dumping of larvae into a wound. Experience and study will teach the surgeon the frequency of dressings and the volume of maggots suitable for given wounds. Excessive numbers have been found to enlarge lesions and cause unnecessary discomfort, while insufficient numbers will occasion undue delay in the healing.





FIG 1

FIG 2

FIG 3

FIG 1 L M Preoperative roentgenogram showing an extensive sclerosing osteomyelitis of the left femur. Note the thickened irregular shaft and cortex, the obliterated medullary canal, and the several areas of rarefaction.

FIG 2 L M Eight months' postoperative roentgenogram. Shaft and cortex now more normal in contour. Medullary canal is patent. No areas of circumscribed condensation or rarefaction.

FIG 3 L M Thirty-seven months' postoperative roentgenogram. Compare with Fig 1 to note more normal appearance of the bone.

The quest for substitutes for maggots has to all appearances met with failure. This is not surprising, for when one realizes the multiple actions of maggots one can appreciate that not any one of these effects will efficiently replace the combined action of all. One can readily substitute the proteolytic enzymatic action with other than maggot enzymes, one can change the reaction of wounds

from acid to alkaline with appropriate dressings, one can introduce chemically prepared allantoin, one can diminish the bacterial count by other means, one can wash the wound thoroughly to maintain cleanliness, one can introduce various chemicals and so-called active principles of maggots—all to no avail, because one cannot reproduce the physical subminimal irritation incidental to the

crawling of the maggots. This irritation is the most irreplaceable factor, and is most important to the rapid filling of the wound with granulation tissue before the blood supply to the lesion is markedly diminished by the process of cicatrization. This is not to be construed as suggesting that other means are not effective. This is merely to stress the point that they are not as effective as maggots.

That this is so is evident from a series of controlled clinical observations that I have carried out with the use of maggot enzymes produced for experimental purposes and with allantoin supplied by Robinson, of the United States Bureau of Entomology, Department of Agriculture. Parallel groups of patients were treated with each of these substances and with maggots. The appearance of the wounds, the speed of healing, and the permanency of results were without a doubt much more satisfactory under the influence of maggots. In several instances complete filling of wounds was unduly prolonged while under the influence of allantoin or maggot enzymes. In these instances excision of scars and the use of maggots produced prompt closure of wounds.

A review of the literature available to me has failed to indicate evidences of the satisfactory influences so widely proclaimed with regard to allantoin, on the one hand, while on the other, the detailed results of, and the manner of production and the composition of the so-called 'active principles of maggots' are shrouded in mystery.

### Case Reports

*Case 42995*—L. M. a 22 year-old colored female was admitted to the service of Dr Samuel Kleinberg at the Hospital for Joint Diseases on May 22, 1933 with a chief complaint of pain and swelling of the right thigh associated with fever and chills of two weeks' duration. Sixteen years prior to this admission she sustained a compound fracture of the right femur which apparently healed satisfactorily after a seven months stay in bed. Six years ago pain developed in the right femur and an operation for

osteomyelitis was performed. Four years ago another operation was performed at the same site. One and a half years ago pain and swelling recurred. This was relieved by a spontaneous discharge of pus.

Physical examination revealed a well developed colored female in good general condition. She walked with a right-sided limp. The right thigh presented several healed scars of sinuses and operative incisions on its outer aspect. The upper end of the operative scar was warm, indurated and tender. The upper portion of the thigh was swollen. The hip and knee joints were uninvolved. Roentgenographic examination (Fig 1) revealed an extensive sclerosing osteomyelitis of the upper two-thirds of the shaft of the femur as indicated by a thickened irregular shaft, thickened cortex and obliterated medullary canal which presented several areas of rarefaction.

On May 27 1933 a saucerization operation was performed and all diseased bone was extensively removed exposing the normal patent medullary canal above and below. Several days later maggot therapy was instituted. The wound collapsed prematurely and on June 16 1933 it was opened wide to allow granulations to form from the bottom up. Nine maggot dressings were applied in all over a period of fifty nine days. The patient was discharged with the wound completely healed on August 13 1933 after a stay of eighty four days at the hospital.

Follow-up examinations revealed that there have been no recurrences to date. The soft tissue scar has remained soft and freely movable. Roentgenographic examination on January 19 1934 (Fig 2) revealed a remarkable change in the appearance of the bone, in that the shaft was now reduced to a more normal size and contour. The cortex was reforming and the medullary canal was patent. There were no areas of rarefaction or condensation. The last roentgenographic examination made on June 20 1936 (Fig 3) revealed a further improvement in the appearance in the bone, in that it was nearer to the normal than in the previous study. Normal minute bony architecture may be visualized throughout the previously affected area, for no washed-out areas or areas of circumscribed sclerosis are present anywhere.

This case demonstrates the efficacy of maggot therapy in that it was instrumental in reshaping the bone to a more normal outline. The cortex is thinned, the medullary canal is patent, and the bone deposit is evenly distributed, leaving



FIG 4

FIG 5

FIG 4 P F Preoperative roentgenogram showing a most extensive osteomyelitic process in the ulna with a pathologic fracture at lower end. Note sequestrum and involucrum formation, areas of rarefaction, and beginning blocking of medullary canal.

FIG 5 P F Thirty-three months' postoperative roentgenogram showing a complete reformation of the ulna to a relatively normal shape and structure. Medullary canal is patent. Normal bone architecture can be visualized throughout.

no areas of rarefaction or circumscribed condensation. The minute bony architecture can be visualized throughout. All of this is indicative of a relatively normal blood supply throughout. It is because of all of these appearances that I am encouraged to believe that the

likelihood of a recurrence in this area is minimal.

*Case 50438*—P F, a 14-year-old white boy, was transferred to the service of Dr Samuel Kleinberg at the Hospital for Joint Diseases on January 18, 1933, with a history of a most severe form of acute osteomyelitis of three and

one-half months duration, involving the left femur and left ulna with pathologic fractures of both bones, marked exhaustion and a long septic course characterized by high temperature and positive blood cultures over a period of six weeks. Prior to transfer he had had three operative attacks on the ulna four operative interventions of the femur and five blood transfusions.

Physical examination revealed an anemic white male boy in poor general condition whose temperature had subsided to the range of 101.6 and 97.5 F. There was evident exhaustion and toxemia. The left forearm presented a long operative wound over the ulna with mushy indolent granulations. A roentgenographic study on January 16 1933 (Fig. 4) revealed a most extensive osteomyelitic process in the ulna with a pathologic fracture two inches proximal to its lower end. A large sequestrum involved the lower two thirds of the shaft which was enlarged and deformed as a result of involucrum formation. There were several large areas of rarefaction with beginning blocking of the medullary canal at several points.

The left thigh presented an operative incision extending from the greater trochanter to the supracondylar region. The granulations were mushy, unhealthy and indolent. Roentgenographic examination revealed a most extensive involvement of the entire femur with pathologic fractures in the subtrochanteric and supracondylar regions with marked sequestrum and involucrum formation. There was marked rarefaction throughout indicative of extensive necrosis.

On January 18 1933 the left ulna was extensively saucerized leaving but the merest shell of bone and periosteum and the limb was immobilized in a circular plaster of paris bandage. Several days thereafter a large window was made in the plaster and maggot dressings were instituted—seven in number—over a period of twenty days. The wound filled rapidly with firm granulations and on April 22 1933 the forearm was pinch grafted. Three weeks later the forearm was completely healed and has remained so to date without any restriction of motion in either the elbow wrist or forearm. Roentgenographic examination on October 14 1935 (Fig. 5) revealed a complete reformation of the ulna which was relatively normal in shape save for those defects due to surgical interference. The cortex was of normal thickness, the medullary canal was patent and the minute architecture was visualized throughout. There were no areas of condensation or rarefaction.

The left femur was saucerized on February 3 1933 and immobilized in a plaster of paris splint. Unfortunately the extent of the disease the anatomic relationships in the region of the hip and the general condition of the patient made a thorough saucerization of the upper portion of the femur both impossible and unwarranted. The lower portion of the femur however lent itself to a thorough operative interference. Maggot therapy was instituted several days thereafter. Three months later the lower two-thirds of the femur was satisfactorily healed clinically and roentgenographically and has remained so to date while the upper third failed to heal. This area was subsequently reoperated. Thorough surgical removal of diseased tissue was found to be impossible because of anatomic considerations with the result that multiple sinus formations about the hip joint have recurred.

This case is presented to demonstrate the satisfactory results of maggot therapy in the face of satisfactory and thorough surgical removal of diseased areas, in contradistinction to the inefficacy of this method in the presence of incomplete surgery. This case also demonstrates the minimal scarification of soft and osseous tissues with resultant preservation of complete range of motion in adjacent joints of the forearm and reformation of the involved bone to a relatively normal appearing structure. These are the criteria which feed my enthusiasm and faith in maggot therapy.

*Case 38704*—M. W. a 14-year-old white male, was admitted to the service of Dr. Samuel Kleinberg on January 25 1931 with a history of an onset of an osteomyelitic lesion of the right humerus on November 5 1930. A drilling and windowing operation had been performed on November 10 1930 and the lesion had been thereafter treated by the Orr method.

At the time of admission to the Hospital for Joint Diseases the patient was in poor general condition showing the exhaustive and toxic effects of a long draining process. The right upper extremity presented a draining indolent wound. Roentgen ray studies (Fig. 6) revealed a very extensive disease of the upper two thirds of the humerus with sequestrum and involucrum formation. The left upper extremity presented a small palpable tender and warm bony hard mass at the junction of the middle and the upper third of the arm which on roentgeno-



FIG 6 M W Preoperative roentgenogram of right humerus showing an extensive osteomyelitic process  
FIG 7 M W Eighty-three months postoperative roentgenogram showing striking reformation of the bone

FIG 6

FIG 7

graphic examination revealed an osteomyelitic lesion, as evidenced by erosion of the cortex of the humerus. The left forearm similarly presented a small osteomyelitic lesion which was confirmed by roentgenographic examination.

On January 30 1931 the superficial lesions of the left humerus and radius were incised and drained. The medullary canals were not involved and both wounds were healed by March 9 1931. The right humerus was also operated upon on January 30, 1931. It became apparent at the time of operation that it was inadvisable to perform a thorough saucerization because of the possibility of pathologic fracture and because of the general condition of the patient. Maggot therapy was instituted. Further studies revealed residual sequestra. On July 13 1931 the right humerus was resaucerized and maggot therapy was again instituted. This operative procedure was again unsatisfactory in that the entire diseased area was not removed. On May 4 1932 two sequestra were spontaneously discharged, and the arm healed soon thereafter and has remained healed to date. Examination on December 20 1937 (Fig 7) at which time the patient complained of pain in the lower third of the arm, the limb was entirely negative clinically. Roentgenographic study revealed a complete reformation of the right humerus which was practically normal in every respect. Further studies one month later revealed an osteomyelitic lesion of the supracondylar region of the humerus—an area which was previously uninvolved and unoperated.

During the course of the above described lesion the patient began to complain of pain in the left arm (May 1931). Roentgenographic examination at that time revealed in the upper humeral metaphysis a small area of rarefaction surrounded by more intense calcification. All symptoms then subsided after about ten days until July 10 1931 when pain recurred. Examination then revealed (Fig 8) an extension of the osteomyelitic process, involving the greater portion of the metaphysis as indicated by the large area of rarefaction and its surrounding area of condensation with adjoining periosteal reaction.

This part was submitted to a thorough saucerization operation on July 15 1931. Four maggot dressings were applied subsequent to the twentieth postoperative day over a period of seven teen days. At the end of one hundred and fifteen days of hospitalization the patient was discharged with a superficially granulating wound. On December 9 1931 five months after operation the wound was completely healed and has remained so to date.

Roentgenographic examination on October 5 1931 (Fig 9), three months after operation showed the saucerized area being filled with newly deposited bone, evenly distributed with out any areas of rarefaction or condensation. Further studies on May 18 1932 ten months postoperatively (Fig 10) showed the surgical defect considerably lessened a patent medullary canal and a reformation of the entire area. Additional studies on June 6 1934 revealed further progress of the bone toward the normal. Final studies on December 20 1937 six years and five months postoperatively (Fig 11) revealed to all intents and purposes a normal appearing humerus.

It is to be added that during the active stage of the lesions in both humeri the general condition of the patient was only moderately satisfactory due to the presence of several other lesions namely a lesion of the left ischium with spontaneous drainage into the rectum (July 5 1931) a lesion involving the twelfth dorsal and first lumbar vertebrae, a lesion of the skull which was saucerized and treated successfully with maggots soft tissue abscesses of the right and left forearms an abscess of the left buttock which led to an intrapelvic focus and an abscess over the sacrum—all of which were drained and treated appropriately and successfully. All lesions were healed on August 8 1932 and have remained so to date save for the new lesion which has developed in the supracondylar region of the right humerus.

This complicated case is presented to demonstrate the absolute necessity of thorough surgical removal of all diseased tissues in the maggot therapy of all of these lesions. This prerequisite was not fulfilled in the right humerus for the reasons indicated above, with the result that resaucerization was necessary. In the instance of the left humerus thorough removal of diseased bone was possible at the primary operation, with the result that the healing was very satisfactory. The healing of all of these lesions was somewhat delayed due to the drain on the recuperative powers by the multiplicity and the extent of the lesions. Finally, the serial roentgenographic studies reveal the character of healing and the reformation of these bones to the point when they resume, within several years, a normal appearance—an appearance that gives us all reason to



FIG 8



FIG 9



FIG 10

FIG 8 M W Preoperative roentgenogram of left humerus showing osteomyelitic lesion in the upper metaphysis

FIG 9 M W Three months' postoperative roentgenogram showing new bone formation

FIG 10 M W Ten months' postoperative roentgenogram showing further progress in the reformation of the part

believe that recurrences in the operative sites will not occur

*Case 41882*—S S, a 26-year-old white male was admitted to the service of Dr Samuel Kleinberg at the Hospital for Joint Diseases on December 28, 1931, with an anamnesis of a fall and injury to the left leg seven years previously. The leg became red, swollen, and painful, and seven days later was operated upon for an acute osteomyelitis through two incisions—one in the upper third and the other in the lower third of the tibia. The wounds apparently healed well. Nine months later the upper lesion recurred and was reoperated. The lesion healed in ten weeks and the patient remained well until two weeks ago when pain recurred. This subsided when the lower third of the leg drained spontaneously.

Examination revealed a poorly nourished white male who walked with a limp on the left side. The left hip was ankylosed in flexion and adduction since the time of the original

lesion. The lower third of the leg presented a draining sinus, and the entire leg was covered with an eczematoid dermatitis.

Roentgenographic examination (Fig 12) revealed two distinct lesions of the tibia. The upper third presented a localized osteoperiostitis on the inner surface of the shaft of the tibia with two areas of rarefaction in the subcondylar region. The medullary canal was shut off from the mid-portion of the bone. The lower third of the leg presented cortical thickening and endosteal bone production. Several distinct rounded areas in the medullary canal were discernible. The medullary canal was blocked off.

Both areas were saucerized through two incisions on December 31, 1931. They presented dense, hard cortices with areas of indolent granulations in the medullary canal regions. The involved areas were made to communicate with the adjacent normal areas. The upper lesion was then treated with maggot dressings, while the lower was packed with vaseline gauze.

Eight maggot dressings were applied over a period of thirty-one days. The patient was discharged after a seventy five-day hospitalization period. At that time the upper wound had been healed completely for eight days and has remained so to date while the lower wound was still granulating. It finally healed on July 6 1932.

Examination on October 9 1934 revealed that both lesions were healed clinically. Roentgenographic studies (Fig 13) showed that there were no areas of rarefaction or condensation in the upper area. The medullary canal was patent. The lower lesion however presented a large area of intense calcification with several areas of rarefaction. Further studies on April 2, 1938 (Fig 14) showed that both wounds were clinically healed. Roentgenographic examination demonstrated excellent healing of the upper lesion without any circumscribed areas of condensation or rarefaction and a patent medullary canal. The lower lesion presents a linear area of sclerosis which is suggestive of sequestrum formation.

This case is presented to demonstrate the greater rapidity with which one of two relatively similar lesions, submitted to similar surgical attack by the same surgeon at the same sitting, healed while under maggot therapy. The lesion treated with maggots healed in sixty seven days, while the one treated with



FIG 11 M W Seventy-seven months post operative roentgenogram showing normal structure. Shaft and cortex normal in appearance. Medullary canal normal. No areas of rarefaction or condensation. Compare with Fig 8.

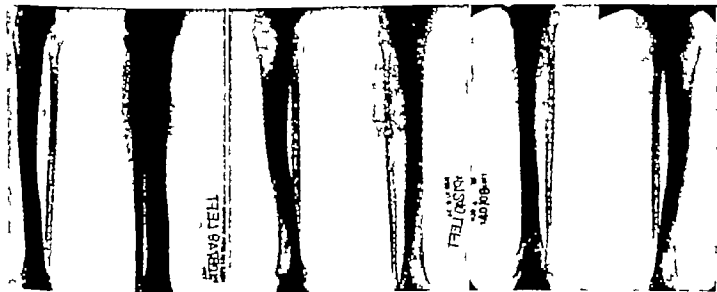


FIG 12

FIG 13

FIG 14

FIG 12 S S Preoperative roentgenogram showing two lesions in tibia. Note periostitis thickening of cortex blocking of medullary canal and areas of rarefaction and condensation.

FIG 13 S S. Thirty four months postoperative roentgenogram. Upper lesion treated with maggots healed in sixty seven days. Lower lesion treated with vaseline packs healed in two hundred and eight days. Upper area shows no rarefaction or condensation or blocking of medullary canal. Lower lesion shows a large area of increased sclerosis and several areas of rarefaction.

FIG 14 S S Seventy-five months postoperative roentgenogram showing difference in type of healing under maggot therapy (upper lesion) and healing under the vaseline pack in the lower area. In the upper lesion there are no circumscribed areas of sclerosis or porosis while the lower lesion presents a linear area of sclerosis surrounded by an area of rarefaction.



vaseline packs healed in two hundred and eight days. Furthermore, the character of the healing as demonstrated by the roentgenogram was much more satisfactory by the maggot method than by that of the vaseline pack procedure. The possibility for recurrence in the former seems to be remote because of the relatively little scarring, while in the latter it seems to be likely because of the presence of areas of condensation and rarefaction and blocking off of the medullary canal.

## Conclusion

The purpose of this presentation is

1 To delineate the pathologic problem confronting the surgeon in the treatment of chronic osteomyelitis,

2 To postulate the criteria for a successful therapeutic procedure in chronic osteomyelitis,

3 To describe the underlying basis of maggot therapy, which consists of an intricate interrelationship of physical, chemical, enzymatic, bactericidal, and biologic forces only possible through the intermediary of a viable agent,

4 To stress the relative insufficiency of maggot enzymes, extracts, and excretions,

5 To emphasize the necessity for thorough and extensive surgical procedure preliminary to maggot therapy,

6 To direct attention to the very satisfactory results obtained through maggot therapy, the absence of recurrences, and the improbability of recurrences in the future in all suitably and properly treated cases.

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## Discussion

Dr Maurice M. Pomeranz, *New York City*—It has been my privilege to follow serially the roentgenograms of the patients treated by the implantation of maggots. The meticulous manner in which this study was conducted is a testimonial to the scientific attitude and balanced judgment of Dr. Buchman. I am particularly impressed by his conservative attitude, since I am familiar with his brilliant results.

The regeneration of bone following the implantation of maggots is different from that which occurs in other methods of treatment, and a brief description of the process will be of interest.

The process of healing may be divided into three stages, which are radiographically recognizable. The first, or exudative stage, is noted about one week to ten days and occasionally as early as six days following saucerization. At this time a peculiar "foamy" osteoplastic process is noted, which begins in the medulla and extends into the soft tissues immediately overlying the part. It does not extend beyond the excavated zone. While this material approximates the density, it nevertheless lacks the homogeneity of callus. Its borders are well defined, and within the mass proper vacuolated areas suggest the formation of cancellous bone. This appearance persists for about two to four weeks, when the second, or contractile, stage is initiated. This stage is recognized by the contraction of the mass from the soft tissues down to the level of the underlying bone, so that the approximate caliber of the shaft is re-established. As it contracts it appears to become denser, so that it is as dense as the bone of which it is a component part. The new-formed tissue appears to fill in the gap produced by the saucerization. At this stage there is no differentiation between medulla and cortex. The terminal, or reconstructive, stage is noted about six months after the operation. At this time the excavated area is well rounded out and the medulla is replaced by dense, eburnated bone. In my original communication I stated that I believed it perfectly conceivable that this eburnated bone would become replaced in its proper location by a new medullary cavity, similar to that which occurs in old fractures of the shafts of long bones, and that further condensation at the periphery of the shaft probably indicated the reconstruction of a

new cortex. This observation is confirmed by our larger experience.

We have now had sufficient time to observe hundreds of films of cases treated by the maggot method and can safely assert that following this treatment there is unusual regeneration of bone, resembling in its nature callus formation. It is also permissible to conclude on the basis of this experience that healing is more rapid and that the end product approximates more closely normal bone structure than any of the hitherto accepted methods of treatment of this disease.

Dr Fred H. Albee, *New York City*—In reference to the chronic osteomyelitis Dr Buchman very well brought out the necessity of carefully executed surgery particularly as to the complete saucerization of craters or overhanging bone shelves. As to the importance of the claim that the maggots digest and liquefy necrotic tissues and slough I wish to say it is in my opinion very much overdone particularly since when using both the Carrel Dakin or the bacteriophage method the wounds rapidly become most satisfactorily clean with glistening velvety granulations and no necrotic material is visualized. This is particularly the case when the wound is packed with a tampon compounded of paraffin 90 per cent and yellow vaseline 10 per cent. This tampon remains at body temperature in a semisolid state and tends to maintain its conical or pyramidal contour with the base at the dermis. This has a large influence in preventing the too rapid closure at this point at the orifice of the wound—too rapid closure at this point being common where a tampon is not used. As to whether Dr Buchman's belief that the crawling of the maggots (immersed in slimy material) over the granulation acts to stimulate their growth is well founded I personally greatly doubt it.

Dr Buchman made the statement that great care should be taken to keep the proper number of maggots in the wound, and that if too large a number of maggots is placed in the wound it would enlarge the wound and produce discomfort to the patient. I cannot follow this statement because the maggots are supposed to eat up only necrotic tissue. Also I cannot see how the use of maggots for osteomyelitis in the central portion of the long bones would tend to prevent adhesions in joints which would be quite distal to the lesion. There are certain shortcomings of the maggot treatment which are common to the Carrel Dakin method namely that in a case of osteomyelitis complicated by fractures the interference by both of these methods with the improper immobilization of the fractured fragments by coaptation and splintage is very unfortunate. The bacteriophage treatment as carried out by myself does not at all interfere with the immobilization of such fractures and is a great advantage to this treatment also the ability to keep up a constant pressure upon the granulations by the properly inserted paraffin tampon is very conducive to favorable healing of the wound and prevents proud flesh or edematous granulations. The greatest drawback however in the use of this treatment and also of the Carrel Dakin is the great cost involved in long continued hospitalization, as well as the cost of the maggots themselves. In 1 case that Dr Buchman cited the hospitalization lasted for five months, and the average of all cases was above three months. With the bacteriophage method the period of hospitalization following treatment is but a week or ten days and in numerous cases they are not taken into the hospital at all after this. The bacteriophage is inserted into the wound through a catheter or catheters penetrating the plaster cast.

#### HOW TO CHOOSE A DOCTOR

A circular issued by the U S Public Health Service advises the public on choosing a doctor. Anyone moving to a new community is advised to ask his doctor in the town he is leaving to recommend one in the place where he is going. "To check further ask the secretary of your county medical society for a list of competent practitioners, ask the health officer of your city or county or the secretary of the state medical association.

"When first entering the new community if

you are not already supplied with doctors names ask at the hospital or local health office or call the secretary of the local medical society and obtain a list of the general practitioners. Then make it your business to meet these men. Make specific and direct inquiries about what you want to know. If you are connected with some well established fraternal church, or business group make inquiry among your associates. The good physician will not only not object to these personal inquiries he will welcome them.

# ACUTE OSTEOMYELITIS

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**O**STEOMYELITIS, possibly first described by Petit in 1705 as an acute disease of the long bones, still remains one of our pressing problems of surgery. The pathology and etiology are fairly well known. It is generally conceded to be a local manifestation of a generalized disease. The localization occurs first in the metaphysis and then by extension to the subperiosteal layer, the shaft, the epiphysis, and the joint. Starr, of Toronto, gave one of the best descriptions of the pathologic process involved.

While any of the suppurative organisms may produce the disease, the staphylococcus aureus is by far the most common. This is true in reports by McNeal,<sup>1</sup> Joyner,<sup>2</sup> Williams,<sup>3</sup> D E Robertson,<sup>4</sup> Sorrel and Boppe,<sup>5</sup> and Findlay,<sup>6</sup> as well as in 80.6 per cent of our own cases. Blood cultures are often positive, but if negative do not by any means rule out the fact that the organisms have gained access to the bone *via* the blood stream. Repeated cultures may be positive unless the patient is making a satisfactory recovery. Our research men have given us much valuable information in regard to toxins, antitoxins, toxoids, vaccines, and serums with the methods of their calculation and use. More studies have been made of the white cells of the blood and the segmented and nonsegmented varieties. As a result, there has occurred some modification in the diagnosis and especially in the treatment of the early acute cases.

Much as we owe to the laboratory findings, including x-ray, the clinical signs remain the same and we must rely on these signs in making the original and early diagnosis. Acute localized pain near an epiphysis, aggravated by steady but not firm pressure, coming on suddenly in an otherwise well child, and accom-

panied by a sharp febrile reaction, is definitely indicative of osteomyelitis. If we add to this picture slight swelling of the soft parts, an elevation of the W B C, an increased percentage of leukocytes, negative x-ray examination, with or without the history of trauma, and especially if there is a recent history of slight skin or other infection, our diagnosis is all but proved. The final proof comes in the operating room, the laboratory, or the autopsy room.

We wish to report in brief the cases of acute osteomyelitis seen and treated at the Strong Memorial Hospital, University of Rochester School of Medicine, over the period of the past ten years. These do not include cases following abscessed teeth, compound fractures, or primarily infected joints. This group was chosen deliberately, as it does *not* represent cases under the care of one surgeon, but cases treated by many methods by various surgeons and orthopedists. A total of 36 cases are reported.

The most significant facts that can be drawn from this table (which I have not read in detail for the sake of brevity) are these. Few cases, 14 per cent, are seen in the hospital within forty-eight hours of the onset of symptoms. Thus when we talk of immediate versus delayed operation a definite time must be stated. Forty-four per cent of the cases had symptoms dating back two to seven days before admission. In our cases 3, or about 8 per cent, were operated upon within forty-eight hours after onset of symptoms. All 3 showed staphylococcus aureus on culture. The wounds healed promptly without sequestrum formation and no further symptoms developed. This has been our experience in private cases in other hospitals. In the larger group of cases, although operated upon

TABLE 1—SUMMARY

	No	Per cent age
26 cases. Males—22		
Females—14		
Ages: Less than 2 years	2	5.6
From 2 to 12 years	10	52.8
From 12 to 21 years	12	33.3
From 21 years +	3	8.3
Onset of symptoms prior to admission		
Less than 48 hours	5	13.9
From 2 to 7 days	16	44.4
From 7 to 30 days	10	27.8
Over 30 days	5	13.9
TREATMENT OPERATIVE IN ALL		
Time of operation, relative to admission		
Immediate	30	83.3
Within 48 hours	4	11.2
Delayed	2	5.5
Time of operation, relation to onset of symptoms		
Within 48 hours	3	8.3
Within 7 days	18	30.0
Over 7 days	15	41.7
Type of operation employed		
Incision of abscess only	—	5.5
Incision and drilling	26	72.2
Guttering	3	6.3
Curettage	4	11.2
Widow	1	2.8
Secondary operations	14	38.8
Gross findings at operation		
No suppuration	1	2.8
Pus subperiosteal	2	5.5
Pus subperiosteal and in bone	27	75.0
Pus in bone only	6	16.7
LABORATORY FINDINGS		
X-ray		
Positive	0	25.0
Negative	27	75.0
Blood Cultures:		
Positive	12	33.3
Staphylococcus aureus	11	30.5
Staphylococcus Hemolyticus	1	2.8
Wound Cultures		
Staphylococcus aureus	20	60.5
Staphylococcus Hemolyticus	1	2.8
Streptococcus Hemolyticus	4	11.2
Not reported	2	5.5
Additional Treatment		
Bacteriophage	2	5.5
Transfusions	5	13.9
Infusions	Routine	
Plaster casts	9	25.0
Traction	1	2.8
Results		
Healed	19	52.8
Sinuses still draining	4	11.2
Died	19	52.8
Immediate	5	13.9
Later	2	5.5
Not followed	6	16.7

soon after admission, about an equal number were operated upon within one week after onset of symptoms, and the remainder were still further delayed. Of those cases operated upon during the period of two to seven days after onset, 4 died, 12 developed sequestra or multiple foci and eventually 10 were reported as healed. Of those 15 in whom operation took place later than seven days after onset, only 1 healed completely, 3 died, and the others developed sequestra and draining sinuses, 1 requiring amputation. This gives a mortality of 19.5 per cent, and complete healing in only 52.8 per cent.

Incision of the soft tissues and drilling of the cortex with small drills was the operation of choice. This was probably wise, as in 34 of the 36 cases infection was found in the spongy bone or medulla. Extensive guttering, or curettage, and resection is to be deplored. Immobilization was not carried out in the earlier cases, but is advisable and is being used at the present time. Up to this point it would seem that we agree with the recommendations of Hart,<sup>9</sup> Joyner and Smith,<sup>2</sup> Fraser,<sup>7</sup> Jones and Roberts,<sup>8</sup> Sorrel,<sup>10</sup> Findlay,<sup>6</sup> Gregersen,<sup>11</sup> and possibly with R. C. Robertson.<sup>12</sup> Apparently the methods and views here expressed are somewhat opposed to those of Philipowicz,<sup>13</sup> McNeal,<sup>1</sup> Wilensky,<sup>14</sup> Lebeuf,<sup>15</sup> D. E. Robertson,<sup>4</sup> Fèvre,<sup>16</sup> Artaud,<sup>17</sup> Sorrel and Boppe,<sup>5</sup> and Crossan,<sup>18</sup> who favor either delayed operation, incision of soft parts only, or the still more conservative (?) nonoperative treatment in the hopes that the infection will subside and the abscess absorb.

Our use of bacteriophage, as advocated by Albee<sup>21</sup> and others, and extensive use of vaccines and antitoxins has been too limited to draw any conclusions. They are undoubtedly of value in combating the infection, always providing adequate surgery has been performed. Transfusions, saline, and general suppurative care is imperative in this as in every other infectious process. Complete rest and slight elevation of the extremity is necessary. Heat, continuous if possible also aids in maintaining circulation and stimulates healing. During the past year we have been using the Cooley compress (a special electric pad and rheostat) to maintain constant heat for the entire healing period. Up to date our cases are too few and too recent to report in detail, although the results would seem to indicate more rapid and complete healing with this method.

There will always be a justifiable difference of opinion in the treatment of this disease based on the individual surgeon's experience and available hospital equipment. This is especially true when the factors of toxicity, multiple foci, varying

pathologic organisms, and time of onset in relation to the first examination enter in. I would urge more careful use of the clinical findings so that a diagnosis can be made within forty-eight hours and can be followed by immediate conservative surgery i. e., incision and drilling of the cortex. A patient treated within this time has not ordinarily reached the toxic condition so frequently mentioned in the literature.

If the surgeon believes that it is necessary to wait for a complete laboratory study and culture, the ideal time for early surgery has elapsed. The patient is toxic and rapidly becoming more so. Transfusions and infusions are indicated prior to and following surgery. Bacteriophage and antitoxins are an additional method of therapy.

Unfortunately, in our series and in many of the others the diagnosis is not made early, so that we may expect a fair percentage of sequestra, sinuses, recurrences, and a mortality rate of 10 to 25 per cent.

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### Discussion

Dr. Fred H. Albee, *New York City*—These two papers, "Acute Osteomyelitis" by Dr. Carl T. Harris and "The Rationale and Results of Maggot Therapy in Chronic Osteomyelitis" by Dr. Joseph Buchman, of New York City,

are most timely, as they cover a considerable percentage of the very perplexing cases that come to the orthopedic surgeon. I think I can say I agree with everything that Dr. Harris has stated in reference to acute osteomyelitis, with the exception of drainage of the marrow cavity by small drill holes. It has been my experience in a large number of cases that small drill holes, plugged with clots, have failed to maintain drainage. I much prefer to place a narrow gutter or window through the cortex of the infected marrow cavity—the length of this window depending wholly on the extent of the infection up and down the marrow cavity. I am sure in some cases that I have seen an undue amount of scar originating from inadequate early drainage, and it is very perplexing and interferes seriously with the clearing up of the lesion. I was glad to see that Dr. Harris emphasized supportive treatment and particularly transfusions, the benefits of which cannot be too strongly emphasized. Dr. Harris' statistics were interesting, particularly in that they showed that 33 1/3 per cent of all of his cases were complicated by blood stream infections. I consider the bacteriophage treatment, as developed by myself, the very best type of treatment in that it allows the surgeon to combat the blood stream infection, with equal efficacy to that of the granulating wound, by a specific laboratory-bred and tested bacteriophage injected into the blood stream in a vegetable vehicle, namely, asparagine. A specific bacteriophage in most of the infections, particularly the staphylococcus, is potent and effectively germicidal in a dilution of 1-10,000,000.

Dr. Isadore Zadek, *New York City*—I am in agreement with Dr. Harris' presentation of the picture of acute osteomyelitis of the long bones, and am in accord with his feeling that the condition is a surgical emergency that calls for immediate operation. When one has seen a child with acute osteomyelitis that has been operated upon within a few hours after the onset of the clinical symptoms, as I have on several occasions, and has noted the immediate change in the patient's condition so that directly there is an abrupt drop in the temperature, with subsidence of toxic symptoms, one is necessarily impressed. No pus may be evident at the operation but the culture from the bone drillings will be positive. When one has seen these wounds heal readily following the operation without the formation of sequestra, and with a rather narrow, nonadherent scar, the favorable outcome is more impressive. One naturally compares these with other patients, where the operation has not been

performed for a number of days or weeks after the onset and where the disease, instead of being localized in the bone has progressed so that one-half or two-thirds of the shaft has become involved necessitating additional operations suffering and expense. The scar in these latter patients is of course broad and adherent and there is always the likelihood of a recurrence. The healed bone is irregular in contour in contrast to the one operated upon very early where the bone is restored to normal as far as one can tell. Furthermore, the patient not operated upon early is more prone to develop extension of the local process and multiple foci. This is to be expected when we realize that pus is present in a rigid tube under tension.

In very young children the condition seems milder than in the older ones. For the past several years I have been very much interested in acute osteomyelitis of the long bones in adults and whereas the clinical picture may be the same as one sees in childhood it frequently is different and in the early stages is a relatively mild affair and tends to remain more localized. If untreated surgically the process spreads.

The picture as seen in the adult is frequently a very indefinite affair. There is usually no history of preceding injury or of a preceding or concomitant infection elsewhere in the body. The patient's complaint is one of pain often poorly localized. At the time of onset and for days the adult frequently shows a temperature approximately normal and a white blood count approximately normal without a material increase in the polymorphonuclear leukocytes.

The pathologic picture is different. The changes are essentially local periosteal ones associated with central involvement of the shaft.

This is due to a more even blood supply to the bone, in contrast to a greater blood supply about the metaphyseal region in children. There is greater likelihood of joint involvement in the adult because the cartilaginous barrier of the epiphysis has disappeared. At operation one may find a local cortical thickening bathed in a couple of cubic centimeters of pus and in this contingency the surgeon should not be misled into believing that there is a suppurative periostitis present. This is part of the picture of an osteomyelitis and the shaft of the bone should be opened. In an adult I prefer removal of a small window of cortical bone rather than making drill holes as I do in children. Sequestrum formation in adults is rare. The organism is usually a staphylococcus aureus. It may be a streptococcus.

Realizing how poorly osteomyelitis is treated and I think it is the most poorly treated of all surgical conditions acute osteomyelitis in adults (fortunately infrequent) is more poorly handled.

I have not had sufficient experience with the use of maggots to discuss Dr. Buchman's paper intelligently. I have seen a number of his patients who have been operated upon, and one question arises whether or not the excellent results that he is getting are perhaps due in part to improvement in his surgical technic and judgment based on his further experience, as I am firmly convinced that in chronic osteomyelitis the operative procedure called for is an extensive saucerization with removal of all necrotic bone and with an adequate circulation established into good bone at each end of the trough.

## YELLOW CHALK AND LEAD POISONING

There has been considerable agitation for the use of yellow chalk. Some school systems have made the change to yellow.

It is reported that in Wisconsin an outbreak of lead poisoning has occurred among school children. Investigators started the usual questioning and testing that is a part of modern health protection. Was this disease general to the community? No. It was confined to school children. What factor in the school environment might cause this disease? Which of these was a newly appeared factor?

The testimony and the evidence pointed at this new chalk reports the *Journal of School Health*. How can the suspicion be proved?

Test the air! The classroom air when tested for lead was found to contain several times the amount of lead that would be tolerated by public health authorities in industries handling lead products. As a precaution, the use of yellow chalk has been forbidden in the schools of Milwaukee.

Lead is commonly used as an ingredient in colored chalks because of its cheapness. No chalk—other than white—should be used in the schools until manufacturers change their habit and until chemical tests prove these new chalks free from lead or other toxic material. A laboratory test of one yellow chalk showed 6 per cent lead content.

# SULFAPYRIDINE IN THE TREATMENT OF PNEUMONIA

## Report of 100 Cases

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*(From the Medical Service of the Nassau Hospital, Mineola, Long Island)*

**S**ULFAPYRIDINE has been used in the treatment of pneumonia at the Nassau Hospital since January 1 of this year. Through the courtesy of a well-known manufacturer the drug was furnished to the hospital with the understanding that accurate case records be kept and the director of the medical service be responsible for its use. Instructions to this effect with an outline of approved procedure were sent to each member of the hospital staff, and a special chart was provided for these cases. Although this series of cases includes private as well as ward patients, the staff generally cooperated fully in carrying out the program and keeping good records. It was impossible, because of a lack of sufficient trained personnel in the hospital, to undertake a definite research into any one phase of the use of sulfapyridine, however, we feel that the results of our first 100 cases are of sufficient value to publish.

### Material Presented

Every case of pneumonia admitted to the hospital was given sulfapyridine whether or not a pneumococcus was found in the sputum. If a patient was desperately sick on admission, or did not respond promptly to the drug, serum was also given. The sputum was examined at least once in 97 cases. A pneumococcus was found in 70 individuals, and 27 were negative for pneumococci. Blood cultures were done in 70 cases and blood counts and urinalyses were done in all cases. Blood sulfapyridine determinations were done in only a few of these cases as the heavy volume of work in the laboratory made this impossible. Particular attention was paid to evidence of toxic effects on the blood, skin, kidneys, liver, and gastrointestinal tract.

The severity of illness in this group of patients, seemed, as far as could be determined, to be comparable to any similar series of pneumonias admitted to the hospital during recent years. Early in the winter the County Health Department found that there were many nonpneumococcic pneumonias with a low mortality rate being reported, but later these became fewer and the cases were generally more severe. During the first five months of 1939, 929 cases of pneumonia were reported to the Health Department, with a mortality rate of 8.8 per cent. A few cases removed to New York City hospitals are still to be reported on. About 400 of these cases were sent to local hospitals, all of which have been using sulfapyridine since January 1. One can assume that most of the sickest cases were hospitalized, and since the drug was placed on the market it has been quite generally used in this county. The only definite evidence that these cases were less severe than other years is the low percentage of positive blood cultures. In 65 cases, one lobe was involved, in 29, two lobes, and in 6, more than two. In 90 of the 100 cases the site of the lesion was confirmed by x-ray.

Sixty-one cases were admitted before the fourth day of the disease, 20 on the fourth day, and 19 after the fourth day. Forty-two cases occurred in children under 10 years of age, 9 of these occurring during the first year. The adults showed the usual distribution in age groups.

The average number of days spent in the hospital was 13.8 per case.

### Mortality

Four of the 100 cases died, 1 infant and 3 adults. In each death there is good reason for argument as to whether

the death should be considered a sulfa pyridine failure, but since the drug was given we feel that they should be reported as part of our series

Brief histories of the cases which died follow

*Case 25*—An 11 month-old baby admitted on the sixth day of illness desperately sick. Three lobes were involved this confirmed by x ray. Two sputum examinations showed an unidentified pneumococcus in Pool C. Blood culture was not taken. The child was given 3.0 Gm of sulfapyridine in seven doses and died thirty hours later having shown no response

*Case 42*—A 33 year-old woman admitted on the sixth day with two lobes involved showed a Type I in the sputum and a very heavy growth of Type I in the blood. Leukocyte count 6 100 with 76 per cent polymorphonuclears. She received 400 000 units of Type I serum and 8 Gm of sulfapyridine. She vomited so it is difficult to tell how much of the drug was retained. She died in twenty four hours.

*Case 57*—A 73-year-old woman admitted on the fourth day with a Type III in the sputum not very sick—only one lobe involved. An acute otitis media developed showing Type III pneumococcus. She was given 22 Gm. of the drug and showed a prompt beneficial response but on the sixth day the temperature began to rise and she died on her fifteenth day in the hospital. No demonstrable toxic effects of the drug. She developed a paralytic ileus three days before death.

*Case 73*—A 22 year-old woman admitted on fifth day with whole right lung involved. Type I in sputum but blood culture negative on two occasions. 625 000 units of serum and 52 Gm of sulfapyridine were given. Seemed better clinically but lung did not clear or temperature go down after initial response to treatment. Died on fourteenth day. The autopsy showed multiple septic infarcts in lung as well as pneumonia. Autopsy cultures showed no pneumococci but a streptococcus viridans and hemolytic staphylococcus. Careful search at autopsy revealed no evidence of damage to bone marrow liver spleen or kidneys due to the drug

### Pneumococcus Types

In 70 cases a pneumococcus was found classified as follows. Type I, 11 Types III, VIII, XIV, 6 each, Type IV, 4, Types V, VII XIX, XXII, XXIII, 2 each, Types VI, XI, XV, XVI, XVII XVIII, XX XXI, XXVIII, XXIX, 1

each. There were 17 cases which showed more than one type or in which the type could not be identified. Thirteen of these appeared in a definite pool but could not be isolated, and 4 showed more than one type—1 showing six

### Blood Cultures

Six of 70 blood cultures were positive, 3 were Type I, 2, Type VIII, and 1 was unidentified. One Type I, with a very heavy growth in an alcoholic with hypertention, made a dramatic recovery, 40,000 units of serum were given after the blood culture had become sterile because the pulse stayed up in spite of a satisfactory temperature drop. The serum was stopped because of unfavorable reaction during administration. One with a heavy growth, died in twenty-four hours in spite of 400,000 units of serum and sulfapyridine. A third, a cardiac with acute cholecystitis and 26 colonies to 4 cc of blood, recovered after 300,000 units of serum and 46 Gm of the drug. The Type VIII cases both recovered, 1 showing 8 colonies to 1 cc. of blood and the other only 1 colony to 10 cc. The unidentified case with 9 colonies to 8 cc recovered

### Dosage of Sulfapyridine

An initial dose of 2 Gm followed by 1 Gm every four hours was given in most of the adult cases. At first we planned to give a minimum of 15 Gm to every patient, but on finding that some patients responded so promptly to smaller dosage, the tendency was to stop the drug sooner. Of the 58 adults, 28 received a total of less than 15 Gm, 15 received from 15 to 25 Gm, 10 from 25 to 40 Gm, and 5 received more than 40 Gm. The average total dosage was 19 Gm per case. Our impression is that small dosage, certainly much smaller than the 25 Gm. originally suggested, will prove sufficient in many cases. In children a daily dosage of 0.2 Gm per kilo of body weight, reducing this to 0.1 Gm after the first twenty four hours, was originally given. Of course, in older children the adult dose was not



TABLE 1—DOSAGE FOR 9 INFANTS

Age	Type	Grams sulfa- pyridine	Response
10 mo	III	4 5	Prompt
11 mo	XV	18 5	Prompt then lysis
11 mo	Pool C	3 0	Died
4 mo	XI	2 5	Prompt
9 mo	XIV	2 5	Prompt
2 mo	VI	11 0	Slow
8 mo	IV	5 7	Prompt
3 mo	XXII	3 5	Prompt
7 weeks	Negative	10 0	Prompt with recurrence of temperature

exceeded. Children seem to tolerate the drug so well that in some cases much larger amounts were given. The average total dosage for children was 7.0 Gm. In 9 infants under 1 year of age the above total dosage was well tolerated in every case.

### Response to Sulfapyridine

As a rule, the temperature in an interval of from twelve to thirty-six hours showed a marked drop and with it the pulse and respiratory rate. The general appearance and sense of well-being of the patient showing a corresponding improvement. The temperature response seems to be a good index of the extent of improvement. Our cases can be quite definitely classified in these groups:

I—Prompt response: those in which the temperature comes down to between 98 and 100 F within thirty-six hours and stays down. 71 of the cases were in this group.

II—Prompt initial response then irregular temperature: these cases showed a satisfactory early response then returned to normal by lysis, or the temperature recurred after varying intervals. There were 12 in this group, 9 of which were proved pneumococcal pneumonias.

III—Questionable or no response: in this group the temperature or course of disease seemed little influenced by the drug. Three of the 4 deaths and the 1 empyema in the series were in this group. Of the 17 cases so classified, 11 showed a pneumococcus.

There were 4 cases in Group II in which the temperature rose to around 101 and 102 F for two or three days directly after the drug was stopped. In

these cases the temperature would probably have stayed down had the drug been continued longer, for there was nothing found to account for the temperature rise. In no case did we encounter a late rise in temperature which appeared to be due to the drug.

In 27 cases no pneumococcus was found in the sputum, and 22 of this number showed a prompt response to treatment. It is, of course, possible that further sputum examinations would have revealed pneumococci. This finding is most interesting, for one would not expect such a high percentage of prompt responses in nonpneumococcus pneumonias. From our results we at least seem justified in our decision to treat all pneumonias with sulfapyridine.

### Serum

Eight cases were also treated with serum. They were all very sick and 6 recovered. Seven were Type I and 1 was Type V. Two Type I cases receiving 625,000 and 400,000 units of serum died. Two others received adequate dosage and did well. The other 4 were given relatively small doses which were discontinued because the patients were so greatly improved.

### Toxic Manifestations

There were no serious toxic signs in any of these cases. Vomiting occurred in varying degrees in 31. In only a few was it necessary to permanently stop the drug because of vomiting. Of the 42 children, only 6 vomited. Blood counts were done on all cases, averaging 3 plus for each adult case. We were unable to do daily counts but nearly every case had at least two counts done during the acute stage and one during convalescence. When indicated more counts were done, and in cases which recovered quickly and were doing well, fewer were done. There was no case which showed by the blood picture or by clinical observation any definite blood dyscrasia.

No case developed an acute nephritis thought to be due to the drug. In many cases albumin and in some, casts and red

blood cells were found but not unlike the urinary findings in any series of pneumonia cases. Again, this observation is based partly on clinical evidence, for not nearly enough urines were examined after the acute phase to make our observations accurate.

One case showed a mild jaundice on the fourth day of treatment and the drug was stopped. The jaundice cleared in three days. On the day the jaundice appeared the blood count was hemoglobin, 90 per cent, red blood cells, 4.5, leukocytes, 27,200 with 84 per cent polymorphonuclears. This may or may not have been a toxic hepatitis due to sulfapyridine.

Cyanosis did not occur except as it might with any pneumonia. There were no rashes or other skin lesions.

## Conclusions

A death rate of 4 per cent is very low for any series of pneumonia cases, and compares favorably with similar sulfapyridine series reported. The mortality rate at the Nassau Hospital for all pneumonias during the past four years is as follows: 1935, 19 per cent, 1936, 20.9 per cent, 1937, 18.1 per cent, 1938, 11 per cent.

From our experience sulfapyridine is a relatively safe and easily administered drug and simplifies markedly the treatment of pneumonia. The patient is made more comfortable, his condition is less apt to become critical, complications are less frequent, less oxygen is required, and less nursing care is needed. Therefore, a saving in time and expense results.

## NEW ZEALAND DOCTORS BLOCKING SOCIALIZED MEDICINE

Socialized medicine has struck a rock in New Zealand in the shape of the refusal of the doctors to sign contracts for service under it. Why they refuse is told by the Wellington (New Zealand) correspondent of the *British Medical Journal*. He says that the New Zealand government completely fails to understand that the basis of the doctors' objections is not financial. Payment has been hardly ever discussed by the profession. The objection is to complete nationalization. The doctors value their freedom and shrink from bureaucratic control. Such in their opinion would lead to the degradation of their professional status, make clerks of them providing innumerable returns and above all lower the standard of service to their patients. On this they stand fast. It is in no sense a strike because under the Act acceptance of service is voluntary and not compulsory. The government now threatens compulsion. It hints at the importation of alien doctors and the suspension of the Medical Registration Act. However a very large section of the thinking public is with the doctors in their trials. Such friends believe that the doctors wish to give the very highest and most untrammelled class of service to their patients as they have endeavored to do in the past. The issue rests with the government. If with its power it strives to force its policy of nationalization it will have a discontented profession and unwilling service.

## HEALTH CARDS FOR DOMESTICS ADVOCATED

Declaring that one-fourth of the children of high school age in Westchester County show evidence of tubercular infections and that there are 18,000 tubercular teachers in the elementary and secondary schools of the United States, Dr. Fairfax Hall of New Rochelle, chairman of the national committee on contact infections of the American Academy of Pediatrics, advocated a nation wide movement to establish health cards for domestic servants, at the annual eastern regional conference of the academy at the Waldorf Astoria Hotel in New York City. Six hundred pediatricians from twelve eastern states, Quebec, and Ontario attended the convention.

Dr. Hall's address was a report on the progress of the academy's campaign to control contact infections, which advocates periodic health examinations for parents, domestic servants, teachers, and all adults who have close association with children. This drive and the program for raising health standards in summer camps for children, discussed by Dr. Warren R. Sisson of Boston, received special attention.

With the elimination of the danger of transmission of germs in milk, adults have become the chief transmitter of infection to children, Dr. Hall said. In the preventive campaign, Dr. Hall reported, health card committees have been established in forty-four states, the District of Columbia, and the Territory of Hawaii.

# NEWER CONCEPTS OF BACILLARY DYSENTERY AND OTHER TYPES OF INTESTINAL INFECTION

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(From the Department of Laboratories and Research, The Bronx Hospital, New York City)

THE subject of intestinal infection is an interesting study in contrasts. Older concepts based upon empiric observation alone are being slowly dissipated in the light of more careful bacteriologic, pathologic, and clinical investigations. Thus, we are learning that the term "colitis" should be properly applied only to conditions involving an inflammation of the colon. "Enteritis" or "gastroenteritis," loosely used to imply an inflammation of the stomach or small bowel, is often negatived by necropsy findings, which reveal involvement of the colon alone or ileum and colon without discernible pathology in the stomach. The vomiting may be merely a toxic manifestation due to a disturbance of the cerebral or peripheral nervous mechanism.

We have been accustomed to think of intestinal infections in terms of purely local effects produced by noxious substances within the bowel. This may be so in many instances in which bacteria, toxins, viruses, parasites, or heavy metals affect the mucosa by direct contact and absorption. A striking example is the *E. histolytica*, which elaborates a histolytic ferment and burrows its way in and under the mucosa into the submucosal lymphatics. There is another mechanism, however, which has received very little attention, but which is probably responsible for a large group of intestinal infections. I refer to the indirect hematogenous excretory mechanism, in contrast to the previously described direct excretory mechanism. The indirect hematogenous route implies that noxious agents, originating either within the bowel lumen or in some extraenteric focus like the throat or respiratory system, enter the blood stream and are excreted through

the intestines and kidneys. During this process substances brought to the intestinal wall by the mesenteric vessels meet a vast protective barrier in the form of innumerable lymph nodules, which the blood vessels embrace in a fine filamentous network and whose substance they penetrate. This arrangement readily explains the rather mystifying group of intestinal infections in which no known intestinal organism of etiologic significance can be recovered, although definite intestinal pathology is present. These changes can be best studied in necropsy specimens by means of the intestinal illuminator<sup>1</sup> and in the living tissues by the aid of red and green color filters during sigmoidoscopy.<sup>2</sup> The degree of inflammatory response, of which congestion and lymphoid hypertrophy are the earliest manifestations, depends upon the nature of the infecting organism. It is particularly striking in bacillary dysentery, in which there is a definite progression of pathology<sup>3</sup> involving three successive stages, viz (1) punctate follicular hyperplasia, (2) punctate follicular necrosis, and (3) discrete and confluent ulceration. The typical intestinal lesions can be produced in rabbits by the intravenous injection of either living dysenteric organisms or their toxins, the bacilli appearing in the previously dysentery-free bowel within twenty-four hours. A similar phenomenon occurs in the human, the intestinal lesions being produced during the process of excretion of the absorbed toxin from the blood vessels into the lumen of the bowel. These observations are of the utmost clinical importance because diarrhea in bacillary dysentery, as in nearly all intestinal infections, is a protective response by the

*Read at the Annual Meeting of the Medical Society of the State of New York,  
Syracuse, April 25, 1939*

body to rid itself of the toxins and bacteria. Unwise use of antidiarrheal remedies often results in reabsorption of toxin with a corresponding increase in systemic effects. Conversely, the careful use of castor oil at the onset of symptoms may abort the disease or modify its course.

These facts lead us to divide intestinal infections into two great classes, viz (1) those due to organisms or their toxins originating within the bowel, and (2) those that merely represent focal manifestations of some systemic disease. In the first group we may include the dysentery, typhoid, Salmonella, and staphylococcus infections. Their action is largely that of the toxins they elaborate. In the second group we may include the streptococcus, staphylococcus, meningococcus pneumococcus, H influenzae, the virus of rheumatism, and paratyphoid. There are undoubtedly many others.

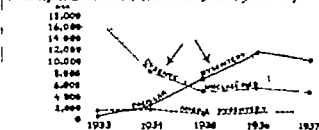
Of the first group, which might be termed the specific infectious group, we shall only consider bacillary dysentery because its reported incidence appears to be rapidly mounting, at present constituting the largest member numerically speaking. The experimental and clinical studies have been reported in detail elsewhere. Next to syphilis, bacillary dysentery is probably the greatest disease mimic. Thus, the new forms include the appendicular with acute distal ileitis, meningitic, pneumonic, agranulocytoid, constipated, asymptomatic, and afebrile. The names indicate their chief characters. What is most important, however, is that unless the general practitioner recognizes these atypical cases at the onset, such patients become a potential source of contagion to those about them. Fortunately, the germs of bacillary dysentery can only be transmitted from the intestinal tract of the person who has the disease to the mouth of the one who ultimately contracts it. This simplifies the problem, since the atypical cases often do not exhibit diarrhea for approximately twenty four hours after the onset. The practical inference is that any patient with diarrhea whether at home or in a hospital should be isolated at once. If the cultures prove negative,

## When Cases of Dysentery Enteritis and Diarrhea Are Studied the Incidence of Bacillary Dysentery Rises as the Unclassified Group Falls

Based on U.S. Public Health Service, 1933-1937

	1933	1934	1935	1936	1937
Bacillary	624	197	741	1155	1,214
Amebic	1,573	1,004	1,318	4,483	1,074
Unclassified	17,042	1,119	4,061	5,124	4,721
Total	19,240	2,320	12,000	11,762	7,009

Note the steady rise in the number of cases of bacillary dysentery, the incidence in 1937 being sixteen times that in 1933. There is a coincident inverse relationship of bacillary to unclassified dysentery.



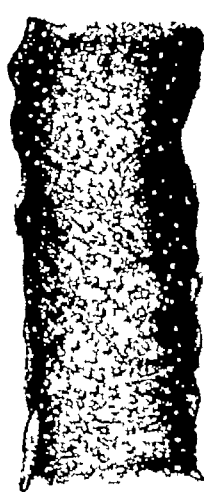
Graph showing relationship of incidence of bacillary dysentery, amebic dysentery, and dysentery unclassified, 1933-1937.

As the reported cases of bacillary dysentery increase the incidence of unclassified dysentery falls. Note the steady low incidence of amebic dysentery unaffected by the fall in the unclassified dysentery curve.

no harm is done. Neglect of this simple rule has been the cause of many serious institutional outbreaks and contact cases at home. The family nurse, who is generally the mother, should be taught to isolate any member of the family having diarrhea until released by the family doctor. No patient should be so released until at least three fecal cultures have been obtained on successive days. Cultures are positive most frequently early in the disease, when there is a rising agglutination titer of the blood and a characteristic purulent cytology to the intestinal discharge. The atypical forms of bacillary dysentery to which we have referred constitute a relatively small percentage of the total incidence. Aside from being a potential danger as regards contact infection, they are of absorbing interest because they teach us that what we have hitherto regarded as essentially an intestinal disease often starts with exclusively extraenteric manifestations. Certainly no one will deny that the sudden onset of a chill with hyperpyrexia,

# ACUTE BACILLARY DYSENTERY

## CHARACTERISTIC THREE STAGE PATHOLOGY

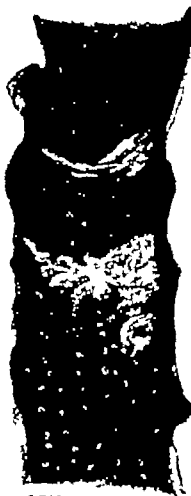


6210



STAGE I

Lymphoid Hyperplasia



6210



STAGE II

Punctate Follicular Necrosis



7871



STAGE III

Confluent Ulceration

cough, râles, and misleading roentgenographic signs suggest anything but pneumonia. Yet that is exactly the mode of onset in the pneumonic type of bacillary dysentery. The disease should therefore be regarded as a systemic disease with intestinal manifestations. Clinical and laboratory investigations point to the existence of at least five types of toxin in this disease—enteric, meningitic, arthritic, pneumonic, and myelotropic. The meningitic toxin probably has a virus associated with it, for I have noted the constant presence of a labial or nasal herpes in the meningitic type of bacillary dysentery.

The second group, in which the intestinal symptoms and signs are but focal manifestations of systemic disease, might be termed the nonspecific infectious group. The focus is entirely extraenteric. It may be located anywhere in the body, most often in the throat, bronchi, lungs, meninges, heart, joints, or genitourinary tract. The organism, toxin, or virus has no specific predilection for the bowel,

but is merely carried there by the blood stream to be excreted into the lumen and out of the body. Every observant physician has noted the beneficial effects of castor oil in relieving toxic manifestations at the onset or during the course of contagious or infectious disease. Often the body will spontaneously incite diarrheal movements in an effort to rid itself of the toxin. The kidneys serve a similar function. During the process, some damage may be produced in the bowel wall, just as in the glomeruli or tubules of the kidney. The brunt of assault is borne by the reticuloendothelial system of the lymph nodules and mucosa. I have noted characteristic lesions in rheumatism (rheumatic intestinal necrosis), periarteritis nodosa (linear mesenteric thromboses), pharyngogenic hematogenous streptococcal peritonitis, or so-called "primary peritonitis" (focal hemorrhagic necroses), streptococcal, pneumococcus VII, staphylococcal, and meningococcal infections, often with embolic lesions within the terminal mesenteric arboriza-

tions.<sup>4</sup> Of considerable recent interest is infectious diarrhea of the newborn with its attendant high mortality. Studies thus far are too limited to permit any broad generalizations. It appears evident that the disease is confined to the newborn, is contracted in institutions by contact, and is notable for the absence of any recognized primary intestinal organism, except *B. dysenteriae*, which has been reported in some instances. Of further interest is the observation that the institutional outbreaks of infectious diarrhea of the newborn in New York City parallel the outbreaks of bacillary dysentery in New York State. My own limited studies suggest two possibilities: (1) that the disease is a focal manifestation of systemic disease, probably in the upper respiratory tract, and (2) that the disease includes, at least in part, some cases of acute bacillary dysentery.

### Diagnosis

Confronted with a case of diarrhea in a child or adult, the diagnosis rests on the history, clinical symptoms and signs, and laboratory study. A contact history shortly before a rather abrupt onset of abdominal cramps and diarrhea with fever strongly suggests bacillary dysentery. The presence of blood tinged, watery stools with some mucus and purulent exudate lends further support to the diagnosis. Spastic ileum and sigmoid are nearly always felt through a thin or relaxed abdominal wall. Sigmoidoscopic examination is without danger in experienced hands and reveals the characteristic three stage progressive pathology in twenty-four, forty-eight, and seventy-two hours respectively. Amebiasis has a much longer incubation period than acute bacillary dysentery, that of the former often being a matter of weeks, while the latter lasts only twelve to thirty-six hours. The specific diagnostic features of carcinoma, diverticulitis, intestinal amebiasis, or other parasitic infestations, tuberculosis, typhoid, and *Salmonella* infection, are well understood and can be accurately established by the aid of sigmoidoscopic, roentgenographic, warm

stage, and bacteriologic studies. The nonspecific intestinal infections are obviously those in which none of these specific agents can be found. Repeated bacteriologic and wet smear examinations should be carried out, particularly by the crypt aspiration sigmoidoscopic method,<sup>5</sup> before a diagnosis of nonspecific infectious diarrhea is made. An extraenteric focus should then be sought, particularly in the nasopharynx, bronchi, lungs, and genitourinary tract.

### Preventive Therapy

A good working rule is to 'isolate, culture, and not procrastinate.' In institutions, responsibility should be centralized in the hands of a hospital epidemiologist with full authority to act quickly and decisively before an outbreak spreads and causes unnecessary morbidity and deaths. Appointments as hospital epidemiologists afford opportunities to young graduates and serve as a constructive step in hospital management. The confusion attendant upon decentralization in most hospital outbreaks is a sad commentary upon our otherwise commendable system of hospitalization. A properly trained epidemiologist aims to prevent outbreaks by constant supervision of foodhandlers, and lay and professional attendants, and to limit the scope of outbreaks when they do occur. This system has been in successful operation at our hospital for five years, during which time there have been no outbreaks, although patients with infectious diarrhea are almost constantly admitted to our wards.

For larger groups of people, intestinal infection is essentially a public health problem. Infectious diarrheas are frequent accompaniments of mass movements and crowded cities. The New York World's Fair will present a problem of this type and precautions must be taken to avoid dysentery outbreaks. Steamship, bus, railroad, and airplane facilities will bring to our shore travelers from widely separated localities, many of them endemic centers of bacillary dysentery. The risk devolves largely

about foodhandlers, often transient employees of uncertain habits. They should receive fecal cultures at the time of employment with monthly repetition thereafter. Through the International Dysentery Registry we hope to secure the friendly cooperation of all public health agencies, both domestic and foreign, in the prevention and control of intestinal infections *at their sources*. During outbreaks of bacillary dysentery or the non-specific infectious diarrheas we have found the use of vaccines made up of endemic strains, specific serum, and non-specific serum of decided prophylactic value, particularly in infants and children. I have noted the prophylactic value of vaccine and serum experimentally, and their practical application has been further attested by recent reports of public health officials.<sup>6</sup>

The use of face masks by attendants in preventing the transmission of nasopharyngeal or respiratory infections is of particular importance in the case of infants, who often respond to such infections with intestinal manifestations.

### Curative Therapy

The treatment of infectious diarrheas, whether of the specific or nonspecific type, is based upon three fundamental principles.

- 1 If specific, and a therapeutic serum is available, use it early and in adequate dosage. In bacillary dysentery, the serum is chiefly of value within the first twenty-four to forty-eight hours. In outbreaks where commercial serum is not quickly available it is advisable to use the serum or whole blood of patients who have recovered from the disease.

- 2 If nonspecific, particularly in infants, administer the serum of either parent parenterally at once—30 cc the first day and 20 cc thereafter until the symptoms have subsided. Treat the primary focus.

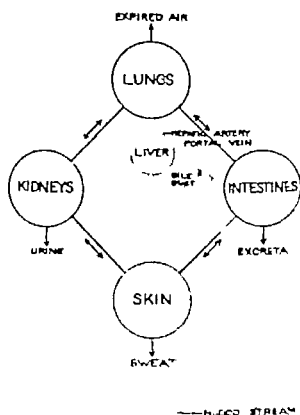
- 3 Dehydration, toxemia, and acidosis are the cardinal features of infectious diarrheas that demand prompt attention. Starvation is generally not a source of anxiety, since the general nutrition over a

short period of time which characterizes the average case can be maintained by intravenous therapy. Frequent feedings by mouth are to be avoided, since they initiate the gastrocolic reflex and aggravate the number of bowel movements. The simplest form of therapy is to use an intravenous drip of 5 per cent dextrose in normal saline or hypodermoclysis. I have found the RBT (rice-banana-tea) diet supplemented by egg albumin water (flavored with a little lemon juice) very useful. The importance of supplying adequate amounts of fluid and glucose is particularly apparent in infants whose margin of safety between life and death is exceedingly narrow in diarrheal disease. These little patients often die from dehydration, acidosis, and toxemia within the first twenty-four hours, before advanced pathology occurs in the bowel.

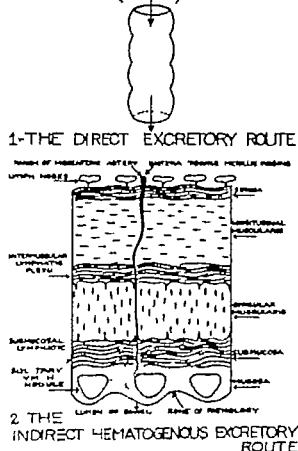
The use of sulfanilamide or one of its modifications is still in the experimental stage. It should be used cautiously since many infants with infectious diarrhea already have an acidosis. I have also noted irritative bowel symptoms, with hemorrhagic necrosis and edema of the mucosa, which appears somewhat fawn colored.

In conclusion, I wish to stress the preventive aspects of infectious diarrheas. Almost all are completely preventable by well-recognized and established public health methods. In this sense, health is purchasable. I am deeply convinced that the most logical solution to the problem of chronic ulcerative colitis and distal ileitis lies in the prevention of acute bacillary dysentery. The former are but chronic manifestations of the initial acute disease, which has a peculiar predilection for the distal portion of the ileum and the colon. This area may be termed "the zone of preferential pathology." It is generally admitted by public health officials that the reported incidence of dysentery and other infectious diarrheas is but a fraction of their actual incidence.<sup>7,8</sup> Prolific sources of infection are the summer hotels and camps, whose short tenure and large number make them impossible of adequate supervision by

# THE RECIPROCAL EXCRETORY MECHANISM OF THE BODY (R.E.M.)



# THE DUAL EXCRETORY MECHANISM OF THE INTESTINES (D.E.M.)



existing health department facilities. It is amazing to note how otherwise meticulous parents disregard these important considerations, and to note the laxity that only too frequently surrounds outbreaks of so-called 'gastroenteritis'. I have on numerous occasions been told by patients with acute bacillary dysentery or chronic ulcerative colitis how only visitors get diarrhea until they get used to the drinking water," while the natives are immune. Yet the outbreaks at these resorts are frequently proved to be due to bacillary dysentery to which the natives have already acquired a certain degree of immunity.

## Summary

The newer aspects of intestinal infection have been presented and constructive suggestions offered for their prevention and treatment.

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## Discussion

Dr Ernest L. Stebbins, Rochester New York—It has been a real privilege to have the opportunity to hear Dr Felsen's most interesting discussion of bacillary dysentery. There are many of us who believe with him that bacillary dysentery occurs in this part of the country much more frequently than is generally believed and that the disability resulting from this infection is far greater than is generally recognized. As Dr Felsen pointed out, reported morbidity and mortality are grossly misleading. Report of a case as bacillary dysentery has in the past rarely been made in the absence of the finding of gross blood in the stools, although it has been clearly shown in numerous studies that in a large proportion of proved infections with the various



strains of *B dysenteriae*, the so-called typical dysentery stool is never observed. The milder infections not infrequently, however, are followed by chronic illness and serious after-effects. Moreover, the apparently mild case is capable of transmitting the infection and is frequently an even greater menace than the severe case because it is not recognized as dysentery and adequate precautions to prevent the spread of infection are not provided.

Dr Felsen mentioned the evidence of the increasing prevalence of dysentery. Certainly the number of epidemics recognized as due to infection with *B dysenteriae* are increasing, but I wonder if this increase is not more apparent than real. In this state, as in many others, an attempt is being made to promptly investigate all outbreaks of illness associated with diarrhea, and in recent years there has been a marked increase in the number of epidemics in which bacteriologic studies have been made, with a parallel increase in the number of epidemics recognized as bacillary dysentery. In 1936, 27 epidemics, including approximately 1,100 cases of diarrheal disease, were reported and studied. Of these, 9 outbreaks, involving 260 individuals, were proved to be bacillary dysentery. In 1937, 48 epidemics, including approximately 1,500 individuals, were reported, and 13 of these epidemics, involving 324 individuals, were shown to be epidemics of bacillary dysentery. In 1938, 72 epidemics of diarrhea, including 3,300 individual cases, were

studied. Twenty-four of these epidemics, a total of approximately 1,200 cases, were shown to be due to *B dysenteriae* infection.

The investigation of these epidemics has added materially to existing knowledge of modes of transmission of dysentery. A large proportion of these outbreaks has occurred in summer camps and summer hotels and, as Dr Felsen has found, there is frequently a history that only new arrivals developed the illness. In a number of instances, however, numerous carriers have been demonstrated in the resident population. It seems in all probability that the carrier prevalence in these rural areas is high and that inadequately protected water and milk supplies provide an opportunity for widespread dissemination of the infection.

Recent efforts to obtain prompt notification, in order that epidemiologic investigation including bacteriologic examination of stool specimens may be made early in the outbreak, have resulted in a constantly increasing proportion of diarrheal outbreaks proved to be dysentery. It seems most probable that as an even larger proportion of the so-called summer diarrheal outbreaks are more carefully studied, an even larger proportion will be found to be bacillary dysentery.

I would like to repeat and emphasize Dr Felsen's admonition to "isolate, culture, and not procrastinate," and I would like to add "report."

#### WHY THE BILL WAS NOT PAID

An Onondaga County physician, according to the *Bulletin* of the County Medical Society, received this letter from one of his patients:

"In reply to your request to send a check, we wish to inform you that the present condition of our bank account makes it almost impossible. Our shattered financial condition is due to Federal Laws, State Laws, County Laws, City Laws, Liquor Laws, Mother-in-laws, Brother-in-laws, Sister-in-laws and outlaws.

"Through these laws we are compelled to pay a business tax, amusement tax, head liquor tax, income tax, food tax, and excise tax. We are required to get a business license, car license, operator's license, truck license, automobile license, not to mention marriage license and a dog license.

"We are also required to contribute to every society and organization which the genius of man is capable of bringing to life to women's relief, the unemployed relief, and the gold digger's relief. Also to every hospital and charitable organization in the city including the Salvation

Army, Community Chest, Red Cross, Boy Scouts, Girl Scouts, Y.M.C.A. and Y.W.C.A. For our own safety we are required to carry health insurance, life insurance, fire insurance, property insurance, liability insurance, tornado insurance, unemployment compensation insurance and old age insurance.

"Our business is so governed that it is no easy matter to find out who owns it. We are inspected, expected, suspected, disrespected, rejected, dejected, examined, re-examined, informed, required, summoned, fined, commanded and compelled, until we provide an inexhaustible supply of money for every known need, desire or hope of the human race.

"Simply because we refuse to donate to something or other we are boycotted, talked about, lied about, held up, held down and robbed, until we are almost ruined.

"We paid you for the first bill and for the reasons mentioned have not paid for the second. The wolf that comes to many doors just had pups in our office."

# TREATMENT OF VARICOSE VEINS AND VARICOSE ULCERS

## Experiences in 800 Cases

PHILIP H. RAKOV, M.D., Syracuse, New York

(From the Varicose Vein Clinic, Department of Surgery, Syracuse Free Dispensary and Syracuse University Hospital)

THE injection treatment for varicose veins and varicose ulcers has attained widespread popularity in the United States, and is commonly accepted as a worth while procedure, productive of satisfactory results. Possibly the enthusiasm of many is unwarranted for, as in other relatively new procedures, the end results are not observed by the physician, who does it only occasionally in the course of his everyday practice. One must depend on large clinics for a true evaluation of the procedure in question. In this discussion, it is not the intention of the author to cover the entire subject of varicose veins and their treatment by injections, nor to present a critical analysis of the work that is being done in various centers. Rather, an attempt will be made to present some of the problems associated with this type of treatment and the methods of solving these problems.

These remarks are based on the experience obtained in personally treating 800 patients with varicose veins. 220 of whom had varicose ulcers or varicose eczema. The treatment of these 800 cases involved approximately 10,000 injections and in the last 600 cases, starting with the year 1933, a careful record was kept during the entire course of treatment. Of these 800 cases, 409 have been studied at intervals of one year to five years following completion of treatment in order to obtain a checkup on the results. Each patient was treated and observed solely by the author, a fact that would tend to give significance to the interpretation of the end results. In larger clinics, where the treatment and responsibility is divided among several members of a staff on service for only certain periods of the year, and where statis-

tics are gathered from another's records (often incomplete), the value of the study of a series of cases is not infrequently questionable.

As to the technic of injection, the indications and contraindications, and the complications following injections, there is but little to add to the voluminous literature that has been presented during the past few years. Individual clinics will differ as to solutions used, position of patient, the use of tourniquets and other details, but in the main the successful treatment of this condition involves certain general principles that must be followed in order that the most desirable results be finally obtained. Originally, quinine-urethane was used, but the last 600 patients in this series were treated with 5 per cent sodium morrhuate. The patient stands as a rule, and there has been need for the use of tourniquets on only rare occasions. Today there should be no excuse for a slough following an injection. It is definitely due to a gross error in technic, for with solutions as mild as sodium morrhuate, a few drops accidentally deposited outside the vein are tolerated by the tissues and it requires  $\frac{1}{2}$  cc. or more to produce a slough ordinarily. If the tissues are scarred and indurated, they are less tolerant to the injected solution, however. Also, small, thin walled, superficial veins of course, need only a small amount of solution. Too much will cause an erosion through the wall and overlying skin.

### Recurrences Following Injection Treatment

The greatest problem in connection with the injection treatment is not that of curing varicose veins, but rather that of preventing recurrences after treatment.

TABLE 1—DATA AS TO RECURRENCES ON CASES OBSERVED

Number of Cases	Treatment	Time of Observation	Number of Recurrences	Percentage
409	Injectations only	1½ to 5 years	281	68.7
126	Injectations plus ligation when indicated	10 months to 18 months	16	11.9

No matter how large or numerous the varicosities, they can all be made to disappear, with a concomitant subsiding of symptoms and with little or no disability during the course of treatment. I have not had a single instance in which I was unable to accomplish this.

The problem of recurrence, however, presents certain difficulties. By the term recurrence, the following are included: first, those varicosities which have been injected and which at a later date reappear; second, those varicosities, which were too small to be injected at the time of treatment and which later attained greater size; and lastly, those varicosities that developed from normal veins, following injection of the varicosities present at the time of treatment. Naturally, in any one case of so-called recurrence, there is no positive way of determining to which class the recurrences belong. One must consider the possibility of their being any one of the three types.

To anyone who has treated a large number of varicose veins and has had the opportunity to follow them up at intervals of six months for a period of two or three years, one thing becomes obvious: namely, that the tendency for recurrence is a real one. Patients who, following completion of treatment, seemed to be free of all varicosities, frequently will show at the end of a year or two a return of the condition, sometimes as extensive as before treatment. In using the term recurrence, I have arbitrarily used as a definition those cases in which there were numerous small varices, or one or more large varices, or both.

Of the 409 cases seen at least 18 months following completion of treatment, 281, or 69 per cent, showed many small or

large veins that required injection. These figures are similar to those of Ochsner and Mahorner, who report recurrences in 57.5 per cent of cases observed. Naturally, where there were originally only a few small, isolated varicosities, recurrences were not common. On the contrary, where the varicosities were large and where the valves of the saphenous vein in the thigh were incompetent as shown by the Trendelenburg test, or by the McPheeters pulse percussion test (often referred to as Schwartz test), recurrences presented themselves in over 80 per cent of cases treated. Inasmuch as 3 out of 5 patients presenting themselves for treatment will show evidence of incompetency of the valve of the saphenous vein, it follows that injections alone are not sufficient, and it is in this type of case that the ligation of the saphenous vein, to be discussed later, has proved itself an indispensable adjunct to the injection treatment. The practitioner who, in the course of his office practice, treats the occasional case with injections only, becomes exultant over the result following completion of treatment, but were he to see a number of these cases one year later, his elation in most instances would be supplanted by disappointment.

### Prevention of Recurrences

In those cases that do not present a dilated or incompetent saphenous vein in the thigh, what can be done to prevent recurrences? First of all, it requires a careful, diligent search for all varicosities present. There are some of these that are not large and are so imbedded in fat that they are difficult to palpate. There is no easy way of learning to detect these, unfortunately. It involves patience, diligence, and experience. I feel that many so-called recurrences are nothing more than the enlargement of these smaller varicosities that had not been injected at the time of treatment. Another thing that helps in the prevention of frank recurrence is the frequent observation of the patient for six months. Many times beginning recurrences can be checked, or "nipped in the bud," as it

were, by injecting them while they are still small. In cases in which there is marked swelling of the legs, the preliminary use of an elastic support will often reduce the swelling to the extent that varicosities that could not be detected before will now become palpable. Where there are extremely large varicosities, elastic bandages should be worn during the course of treatment. A lack of observance of seemingly insignificant details, such as these, is believed by McPheeters<sup>1</sup> to be the sole cause of failures in many instances.

### Determination of State of Valves

It should be obvious that in addition to the above measures, a thorough knowledge of the state of the valves in both the superficial and the perforating veins is necessary, and high ligation, low ligation, or both must be performed if indicated.

1 *Trendelenburg Test*—With the leg elevated and the veins emptied by gravity, a tourniquet is applied around the upper thigh. This constricts the saphenous vein, but not the femoral vein. If, when the leg is lowered, the varicosities in the leg immediately fill up, it indicates that the valves in one or more perforating veins are incompetent and that blood is being pumped from the deep veins into the superficial. If the tourniquet is removed, and the veins suddenly dilate to their fullest, the valves in the saphenous vein are incompetent.

2 *McPheeters Pulse Percussion, or Schwartz Test*—The fingers of one hand are placed over the site of the sapheno-femoral junction. A varicosity above or below the knee is percussed with the fingers of the opposite hand. If the valves of the saphenous vein are incompetent, an impulse will be felt by the uppermost hand. This test is simple and easy of interpretation. Moreover, it localizes the site of the saphenous vein when ligation is to be performed.

3 *Perthes Test*—With the leg dependent and the varicosities distended, a tourniquet is applied about the upper thigh. The patient rapidly flexes and extends the knee. If the veins empty, it

shows that the deep system of veins is patent, and it also confirms a Trendelenburg positive test and McPheeters pulse percussion test, for the blood which is aspirated by the deep veins and which would have regurgitated back through the sapheno femoral valve, is prevented from doing so by the tourniquet, so that the varicosities collapse.

4 *Ochsner and Mahorner Test (Comparative Tourniquet Test)*—These two workers, by modifying and elaborating the Perthes test, have produced a means of determining the presence of insufficient valves in the perforating system of veins which, from a practical standpoint in actual use, far supersedes anything heretofore used. Briefly, by having the patient walk with tourniquets at different levels and observing the degrees of collapse of varices, it can be determined at just what level the leaking perforating valve is located.

5 *Tests for Small or External Saphenous Vein*—McPheeters pulse percussion test can be used in cases of varicosities of the small saphenous vein and its branches by placing the fingers of the uppermost hand in the popliteal region, at which site this vein joins the popliteal vein. Likewise, with a tourniquet applied over this region, a modified Perthes test can be performed.

### Saphenous Ligation

In cases where the saphenous vein in the thigh is dilated or incompetent, in addition to the usual measures toward guarding against recurrence, a high saphenous ligation is indicated.

1 *High Saphenous Ligation*—This procedure was shown by De Takats<sup>3</sup> a few years ago to be able to prevent the recurrences that are almost inevitable in this type of case. The principle underlying saphenous ligation is this: given a case of varicose veins in which the saphenous vein in the thigh can be shown to be incompetent, it is logical to reason that the varicosities in the legs are not only constantly subjected to the downward pressure of the blood directly above it as far as the groin, but also to the pres-

# TONSILLECTOMY IN THE DIABETIC CHILD

ARTHUR H. TERRY, JR., M.D., New York City

(Medical Director of the Beekman Street Hospital, New York City)

**D**IABETIC children, like others, occasionally require tonsillectomy, so the question of procedure in the diabetic child naturally arises. Surgically, there is little difference between the two, but medically the diabetic has several special considerations, the more important of which are listed below, together with details of a typical operative case.

Ether is probably the anesthesia of choice because it is the safest and sanest. It may be introduced by a bag of laughing gas or disguised by a few drops of eau de cologne. It is preferable to the newer anesthetic gases even though it be inclined to cause some nausea or blow up a stomach. That is all it does blow up, so that the operating room never resembles a battlefield. Also, there is not the prolonged anesthesia such as is obtained with rectal anesthesia.

*Time of Anesthesia*—Midday is the hour of choice, as it provides plenty of time to flood the patient with liquids, salt him with broths, and sweeten him with carbohydrates rendered acceptable with insulin.

*Diet*—Regular breakfast may be given, leaning toward the carbohydrate rather than the protein side, cereal and milk rather than bacon and eggs, in order to provide sufficient carbohydrate and at the same time an easily digestible meal.

*Insulin*—The usual amount of insulin is given before breakfast, whether this be the regular insulin or protamine insulin or a combination of both. If it be regular insulin, of course it will handle the usual breakfast in the regular manner, but it will require subsequent doses according to the amount of sugar in the subsequent urines. If it be protamine, not only will the breakfast be balanced, but there will also be an insulin surplus to counteract the extra glucose, which should be given

before operation, as well as that caused by the anesthesia itself. If both types of insulin are usually taken before breakfast, then the same dosage should be administered on the day of operation.

*Fluids*—Plenty of fluids are taken before operation because very little can be given directly after operation. Of course intravenous and subcutaneous therapy is always available to those preferring the heroic. Water is forced and milk is allowed with breakfast at 8:00 A.M., one hour after breakfast, one glass of gingerale to provide extra glucose, two hours after breakfast, a second glass of gingerale, three hours after breakfast, one cup of salted broth because of its readily absorbed salt and fluid. This breakfast and these fluids will have left the stomach before the operation four hours after breakfast. Orange juice does not so readily carry on, in fact, gingerale or even coca-cola is usually preferable to orange juice in a jittery stomach.

*Drugs*—No drugs are taken before operation. Cathartics are not usually required in the child who has his own familiar bathroom instead of the so-called hospital facilities. Familiarity breedeth contempt and also a relaxed alimentary canal, hence the vines and hallowed honeysuckle. Sedatives are to be avoided if possible, restricted always, and given only when insisted upon by an indulgent surgeon. A little codeme may be given because of extreme restlessness but not just because it is an old Spanish custom. Restlessness may portend a multitude of evils and he who ignores the omens offends the gods. Better restless than at rest.

*Operation*—Like the anesthetic, the best is none too good. Speed counts and puttering around involves more anesthesia and more nausea. Don't try to do the

job too well, as the patient is probably more important than his component parts.

*Postoperative Care*—Never rush the drugs. Even though the nurses brandish their loaded hypos, delay the thrust, and allow the patient to normally recover his composure, vomiting some blood, raising some mucus, moaning and groaning a bit in assurance that there is neither impending coma nor hypoglycemia. Now is the time for discretion. The parent may be allowed to go out and purchase his ice cream, as this gives him something to do and something to eat, but the doctor should abide and suffer along for several hours with the patient until recovery. During this time a blood sugar may be taken to ease everyone's curiosity, as there will probably be no voiding until evening. The blood sugar will be interesting but unimportant, as the urines will soon be along to tell their story and indicate requirements. If no food be taken, the morning protamine insulin will take care of the anesthesia so there will be no further insulin requirements. Even temporary yellow reductions will be cleared before next morning by the first dose of protamine insulin. However, if red reductions recur, then it is well to cover with extra regular insulin, probably ten units at a time, until the yellowish green reductions appear in the specimens.

Always err on the side of having a little too much sugar in the urine, as the protamine insulin is whistling through its work from morn till morn. After vomiting has ceased, teaspoonful doses of water may be given by mouth, but other fluids or ice cream tend only to prolong the nauseating agony. If vomiting is severe, saline may be given by rectum and if it persists, glucose may be given by rectum, a tablespoonful in half a glass of tap water. Neither of these procedures is usually necessary any more than the more dramatic intravenous which will spill sugar to confound the observer. With ample fluid and carbohydrate before operation, ordinary nausea and temporary starvation can easily be tolerated after operation.

*An example of a typical case.* J B, girl, aged 12 onset of diabetes aged 3. Recent severe sore throat with enlarged cervical glands and albuminuria and casts therefore tonsillectomy. Usual diet C 100 P 70 F 70 varying according to the indiscretions of youth. Usual insulin protamine 20 regular 9 taken before breakfast. Evening dose according to the whether—that is whether she does or whether she does not show dietary indiscretion. If the urine be sugar free before supper then no insulin. If it be muddy green, then 3 or 4 units. If yellow 5 to 10 units. A muddy green at midnight will always clear by breakfast time.

#### Operative day

- 7 30 A.M. Urinalysis—muddy green (ice cream last night)
- 7:45 A.M. Protamine insulin—18 units in stead of 20 as directed. Regular insulin—5 units
- 8 00 A.M. Regular breakfast.
- 9 00 A.M. 6 ounces of gingerale
- 10 00 A.M. 6 ounces of gingerale.
- 11 00 A.M. 1 cup of salty broth.
- 11 45 A.M. 5 units of regular insulin because of red reduction in the urine due to dietary indiscretion and insulin error
- 12 00 Noon Operation.
- 2 00 P.M. Blood sugar 140
- 4 00 P.M. Blood sugar 160
- 5 00 P.M. No urinalyses yet available. Taking water by mouth.
- 8 00 P.M. Vomited
- 9 00 P.M. Urinalysis—yellowish brown reduction. No diacetic acid.
- 11 00 P.M. Urinalysis—muddy green reduction. No diacetic acid

#### Following day

- 7 00 A.M. Urinalysis—brownish-green reduction. No diacetic acid.
- 7 45 A.M. Protamine insulin—20 units. Regular insulin—10 units.
- 8 00 A.M. 1 tablespoonful of cereal. 1 glass of milk. 1 slice of bread
- Later—further convalescence usual

*Comment*—Tonsillectomy in the diabetic child should be a simple procedure but it requires the constant attention of a physician to ward off unnecessary drugs, foods, infusions and confusions, such as relatives and related conditions.

# Society Activities

## District Branches

**T**HE PROGRAMS for the annual meetings of the district branches are in the process of development and promise a series of exceedingly interesting scientific papers.

The First District Branch will hold its meeting at the Presbyterian Hospital, Medical Center, on Wednesday, October 11. A program similar to the one which has proved so successful for the last three years is being prepared by Dr Whipple and his associates. There will be a total of more than one hundred clinics and lectures.

The Second District Branch will hold its meeting at the Garden City Hotel on Thursday, November 16. In the morning there will be a symposium on neoplasms of the chest, and in the afternoon a symposium on tuberculosis.

The Third District Branch will hold its meeting in Liberty on September 22 and 23, beginning at noon on the 22nd and ending at noon on the 23rd. Some of the persons who will read papers are Dr Bullowa on "Specific Therapy of Pneumococcic Pneumonias", Dr Blakemore on "Electrothermic Coagulation of Aortic Aneurysms", and Drs Carpenter and Warren on "Fever Therapy".

The Fourth District Branch will hold its meeting at Ogdensburg on September 19 and 20, also a two-day meeting beginning at noon on the 19th and ending at noon on the 20th. Among

those who will appear on their program are Dr Philpott, attending obstetrician at the Royal Victoria Hospital, of Montreal, on "Breech Delivery," and Dr Israel, of Buffalo, on "Physicians' Responsibility in Child Behavior Problems."

The Fifth District Branch will hold its meeting in Oswego on Tuesday, September 26. Details of this program are not yet available.

The Sixth District Branch will hold its meeting in Binghamton on Thursday, September 21. Among the readers of papers on this program are Dr Carl Eggers, of New York City, Dr Reuben Ottenberg, of New York City, and Dr Marjorie F Murray, of Cooperstown, on "Medical Examination of School Children."

The Seventh District Branch will hold its meeting at the Veterans' Facility, Canandaigua, on Thursday, September 28. Details of this program are not completed as yet, but it is proposed that in the forenoon there shall be several motion pictures on scientific subjects, which have not yet been released, and the afternoon shall be devoted to a series of demonstrations.

The Eighth District Branch will hold its meeting in Batavia on Thursday, October 5. The details of this program are not yet available.

## Legislative Bureau, Midsummer Bulletin

August 1, 1939

Two commissions that studied health matters last year were continued for another year by the Legislature, namely, Long Range Health Program, with an appropriation of \$40,000, and Care of Hard of Hearing and Deaf Children, with an appropriation of \$20,330.93. The personnel of both commissions has undergone some changes.

### Long Range Health Program

#### *Senators*

Mahoney, of Erie (R), vice-chairman, Riley, of Cattaraugus (R), Coudert, of New York (R), and Kleinfeld, of Kings (D).

#### *Assemblymen*

Mailor, of Orange (R), chairman, Daniels, of St Lawrence (R), Goldberg, of New York (R), Wagner, of New York (D), secretary, and Garcia-Riveria, of New York (A-L).

#### *By the Governor*

Practicing physicians Dr Thomas P Farmer, of Syracuse, and Dr George Baehr, of New York City, representative of labor Henry D O'Connell, of Rochester, representative of industry R V Rickcord, of New York City, and representative of the public Elsie M Bond, of New York City.

#### *Ex Officio*

Dr Edward S Godfrey, Jr, Commissioner of Health, and David C Adie, Commissioner of Social Welfare.

### Care of Hard of Hearing and Deaf Children

#### *Senators*

Hastings, of Rensselaer (R), chairman, Page, of Broome (R), and Farrell, of Queens (D).

#### *Assemblymen*

Williams, C D, of Oneida (R), secretary, Doige, of Franklin (R), and Sheldrick, of New York (D).

#### *By the Governor*

Dr Augustus J Hambrook, of Troy, otolaryngologist, vice-chairman, Miss Estelle E Samuelson, of New York City, executive secretary, of New York League for the Hard of Hearing, Dr Emily A Pratt, of Albany, State Department of Education, Dr Edmund Prince Fowler, of New York City, consulting surgeon, Manhattan Eye, Ear, Nose, and Throat Hospital, and Captain Victor Skyberg, of New York City, superintendent, New York School for the Deaf.

#### *Ex Officio*

Dr E S Godfrey, Jr, Commissioner of Health, and Dr Frank P Graves, Commissioner of Education.

### Drugs to be Sold on Prescription Only

An amendment to the Education Law, which prohibits the sale of hypnotic and somnifacient drugs except on prescription, went into effect July 1, 1939. The law does not prohibit a physician,

dentist or veterinarian from dispensing such drugs to patients under their immediate supervision. This amendment will be superseded on September 1 1939 by a general amendment of the Pharmacy Law which provides that the Board of Pharmacy shall prescribe rules governing the sale of these drugs. I am informed that the Board is prepared to issue such rules at that time.

#### County Public Health Committee

On July 1 an amendment to the Public Health Law providing among other things for changes in the personnel of the county public health committees, went into effect. The law provides that in counties except where a general health district has been established the board of supervisors shall employ health workers who shall work under the county public health committee and the general supervision of the State Commissioner of Health. The county public health committee shall include two members of the board of supervisors, two physicians members of the county medical society and two others, one of whom at least shall be a representative of an organization actively interested in public health activities in the county and ex officio the county manager if there be one, the county welfare commissioner, the director of the county laboratory, and the superintendent of the county tuberculosis sanitarium shall be members.

#### Cancer Must Be Reported

It is now required by law that every physician shall immediately give notice to the health officer of every case of cancer or other malignant tumor under his care. A person in charge of a laboratory must report whenever a specimen discloses the presence of cancer or other malignant tumor. Persons in charge of hospitals, dispensaries or other similar public or private institutions are also required to report every case of cancer or malignant tumor coming under their care. This amendment cannot go into effect, however, until the Department of Health prepares and distributes reporting blanks and makes the necessary office arrangements for filing the reports.

The Department of Health is also authorized to set up a Division of Cancer headed by a director. It is expected that the necessary arrangements will be completed and the provisional appointment of a director announced by September 1.

#### Medical Indemnity

Authority for the creation of medical indemnity corporations was established by the enactment of Article IX C of the Insurance Law, and several groups of physicians are engaged in creating such corporations. Applications for incorporation must be approved by the State Departments of Insurance and Social Welfare. Two groups, one from New York City and adjacent counties, and another from Buffalo and vicinity, have submitted applications for approval.

#### Osteopaths to File Credentials

The Board of Regents has asked the osteopaths who would avail themselves of the opportunity they have for increasing their practice to submit to the Department of Education a full and accurate statement with credentials regarding any special training they may have had which would qualify them for the right to practice limited surgery and prescribe narcotics, anesthetics, antiseptics and biologic products.

#### Congressional Affairs

Further consideration of the Wagner National Health Bill (S 1020) has been discontinued by this Congress. The amendment which he proposed to be added to H R 6835 setting up a nationwide medical service under the Social Security Board was defeated in committee.

A bill requiring the government to extend medical and dental care to active officers of the Foreign Service was vetoed by the President who said in part: "I do not believe that Congress wishes to start the practice of extending such assistance to a large class of civilian representatives and employees."

The newspapers have announced that Federal Justice James M. Proctor of the District of Columbia, has dismissed the indictment against the American Medical Association with the statement: "The thesis of government counsel that trade embraces all who habitually supply money's worth for money payment, and their contention that the statute should be so broadly construed represents an extreme position which does violence to the common understanding of trade, rejects authoritative decisions of our courts, and ignores cardinal rules of statutory construction. The Department of Justice has asked the Court of Appeals to overrule Justice Proctor's ruling. It is reported in the newspapers today on the ground that the District Court erred in its decision."

*Joseph S. Lawrence, Executive Officer*

The family doctor is disappearing in France. People go to specialists, who need to know something of the patients' medical past. So now the government issues a health card to each child at birth on which will be recorded its full medical history from infancy to old age—and no appendix will be taken out more than once.

In Great Britain, so the *British Medical Journal* notes with regret, vaccination against smallpox has been declining steadily for years while immunization against diphtheria, though more widely available than it used to be, has yet to be generally recognized as a necessity and to reach the bulk of the population.



# Medical News

## Opening Address, 1939 Annual Conference of Health Officers and Public Health Nurses

Dr Edward S Godfrey, Jr, State Commissioner of Health

IT is again my pleasure to welcome you all to our annual conference. It is the twentieth since the public health nurses began meeting with us. It is further marked by being held in the twenty-fifth year since the reorganization of the department pursuant to the laws of 1913.

Our mortality rates for 1938 either held their own or were the lowest ever recorded in the field of traditional public health. The acute communicable diseases of childhood took but small toll as compared with even ten years ago. They comprise altogether only 0.3 per cent of the total deaths—a third of what they were in 1929, a seventh of what they were in 1914. Our crude death rate is the lowest on record—likewise, our rates for infant mortality, maternal mortality, and for tuberculosis. The pneumonia death rate was much the lowest ever recorded, due in part to a low incidence of influenza, but in part let us hope for a better public understanding of the implications of its early symptoms and to more prompt and better treatment. Even our accident rate declined and was the fourth lowest since 1914.

On the other hand, our death rates from heart disease and cancer were the highest ever recorded. A very high public health authority has said recently that such rates are indicative of an efficient health service, since they signify the survival of a larger proportion of the population to an age when these diseases cause death. However, they are a valid index only if we consider also the age at which the deaths occur. And this brings me to two important subjects that I wish to discuss briefly.

First of these is the importance of establishing a standard million for the basis of our death rates. General or "crude" death rates are no true reflection of general health betterment or detriment. They depend too largely upon the age distribution of the population. As our population "ages"—that is, as the fraction of older people increases, so will the fraction of deaths from causes associated with age increase. It is important that we have a base that will give us a better comparative picture over time intervals as well as for different localities. It is hoped that some agreement will be reached during the coming year that will lead to the adoption of a "standard million" by the Census Bureau and by state and provincial health departments.

The second subject relates to the establishment of the cancer division in the central offices of the department in Albany and to granting the Public Health Council authority to make cancer a reportable disease in the state, exclusive of New York City. The legislation effecting these changes was recommended by a legislative cancer commission, which spent eighteen months

in a study of the problem and assembled the material presented in the final report. The chairman, Assemblyman Gugino, of Buffalo, introduced the bill and fought it through the legislature. As might be expected, the Governor signed it.

When it became apparent that the State Institute for Malignant Diseases with its small hospital of 30 beds and its inadequate space for the outpatients could not meet the demands made upon it, the first thought was not only to enlarge the hospital accommodations in Buffalo but to begin a program for the erection of two additional cancer hospitals at other places in the state. We who are responsible for the administration of public departments are frequently accused of grabbing everything we can get in the way of appropriations. This is true when we can see clearly a need that is not being met, that we know how to meet, and do not meet merely for lack of funds. We have faith in the social value of our work, we believe that we return to society in services more than we take from it in taxes, and when an opportunity presents itself we seize it. If we did not do so we would be derelict in our duty.

When, however, we come to a field as little explored as is cancer from a public administrative standpoint, then it seems equally a duty to study the matter carefully before making commitments, not only for large capital expenditures, but for large continuing operating expenses. This point of view was accepted, the legislative commission, of which Dr James Ewing, Dr Floyd Winslow, and myself were the medical members, was appointed, and the report and the legislation resulted. Several hearings were held but the really important work was the assembling of a large amount of data under the directorship of Dr R. S. Ferguson, of the Memorial Hospital of New York City, aided by Dr Morton L. Levin, of the cancer division of our department.

This information, much of which is presented in the report, gave us for the first time some idea of the prevalence of cancer, its distribution, and the facilities that exist for its diagnosis and treatment. All of it will be available for the reconstituted division of cancer control. Further, there has been experiment with providing consultation service to tumor clinics in connection with certain hospitals and in assisting certain hospitals to organize such clinics.

One reason, it seemed to me, that state owned and operated hospitals could not be a solution of the problem, is that except for the territory in their immediate vicinities they would be too remote to furnish the needed service at the time when the most good could be done. All doctors must learn to suspect cancer and to take the necessary steps to prove or disprove their suspicions. They must learn to be frank with

*Delivered at Saratoga, June 27, 1939*

patients to be courageous enough to voice their suspicions, and to insist when indicated upon a biopsy even at the possible expense of losing that patient. Too many patients show up at Buffalo with hopeless metastases who have been given a friendly pat on the back some months before and told to watch it and see what happens."

It does little good to 'educate' the laity if that kind of advice is given by certain medical men. It does little good to make a proper diagnosis if the ensuing treatment is misdirected or inadequate. Two of the very real impediments to proper cancer therapy I am informed on what I believe to be good authority are the administration of radium and x ray therapy by those not qualified to give it and the giving of inadequate doses through fear of damage suits for radiation erythema or so-called burns. The cancer commission considered these matters but found no immediate solution. It is a matter however, which presses for an answer. It is to be hoped that our state and county medical societies will give it careful thought and that a way will be found to end the exploitation of a class of cases that is deserving of the best efforts of the medical profession and the sympathetic aid of society.

What I look for from this reorganized division of cancer control are

- 1 To obtain the cooperation of the medical profession in the establishing of tumor clinics in every hospital worthy of the name in upstate New York. In ending whatever abuses of non-fee or misfeasance may exist in the field of radiotherapy I am convinced that the tumor clinic is the best approach to professional education.

- 2 To study the needs of the hospitals relative to their radiotherapy equipment that is x ray or radium or both.

- 3 To furnish qualified consultant service where necessary until a qualified local personnel has been developed.

- 4 To provide the services of a physicist for measuring the dosage delivered by x ray machines where this is not otherwise provided.

- 5 To study the morbidity and mortality records of cancer with respect to site, type, occupation, age, sex, color, geographical distribution, etc.

- 6 To continue and expand the program of lay education by lectures, exhibits, and pamphlets.

- 7 To study the means and methods whereby the state may further aid in the prevention and treatment of cancer whether by providing radium x ray equipment, payment for medical and surgical services and hospitalization on a basis similar to that in vogue relative to crippled children or by the building of additional hospitals to be operated by the state. There is an immense field to be explored on the social side of the cancer problem. It is an expensive disease to treat. It is a drain not only on the financial but on the physical and nervous resources of the family. What is the real social cost back of the 20 000 deaths and unknown number of cases that occur in this state every year? When this is better understood the money needed really to effect some noticeable improvement in the situation as it exists today will be forth coming.

Another law of general interest is that amending the county law with respect to the public health services operated by counties and the committees which direct them. This law provided originally only for the employment of public health nurses. Later it was felt desirable in order to provide some direction and to assure a sustained public interest in the nurses' work to establish a committee and to make eligible for membership in it any or all of any local group that had previously employed nurses later taken over by the county, or which had been instrumental in obtaining the appropriation for nurses by the board of supervisors. Boards of all sizes and varieties resulted. Some of them were distinctly illegal. Some met annually some monthly others at varying intervals. Some paid the expenses of members without legal authority, others were prohibited from doing so by vigilant county attorneys.

This was perhaps excusable when the main idea was simply to get nurses and set them to work. Something was better than nothing. When, however, the field expanded into the employment of dental hygienists, clinic physicans, dentists, nutritionists and allied personnel it became apparent that a more selective committee was desirable. There seemed too no reason for the existence of a committee for sanitary inspectors distinct from a committee handling other public health work.

The matter has been brought more acutely to our attention as our district staffs have been enlarged and as we have acquired personnel more competent for supervision. This is said in no disparagement of the men and women of an earlier day. For their time they were outstanding. But they were trouble shooters in a day when trouble shooting was the thing to do. They were inadequately staffed and it is little wonder that once a nurse was employed by a county she was left largely to her own conception of her duties and technique.

When we came to a closer view of the matter however it was found that an appreciable part of the nurse's time was spent not on public health nursing but on work for which there existed other agencies designed to provide such services. There is no doubt that proper food and proper clothing are needed for health. But except in unusual or emergency cases, it is not the public health nurse's job to act as a collecting and disbursing agency for these necessities. Her job is to know what agency supplies the needed materials or services and to see that the matter is attended to. In one county the public health nurses actually worked for two years under the direction of the County Welfare Officer—and, I strongly suspect without the least detriment to the service.

The development of services for the treatment of syphilis either by the establishment of clinics or by the payment of physicians for treatment in their offices has further strengthened our belief that the time has arrived to reconstitute these committees to reduce their potential membership to a number consistent with the work to be performed and to bring into the committee the heads of the county laboratory, the tuberculous sanatorium and the county welfare department to provide a staggered term for the appointive members to provide for the payment of expenses of such

members, and to authorize a per diem payment at the option of the board of supervisors

There is real work for these committees, a real opportunity for public service, not only in giving guidance to the work the medical, dental, nursing, and sanitary personnel are doing, but in learning its details at first hand, in spreading that knowledge and in obtaining support for continued and increased appropriations. For, I say without fear of intelligent contradiction, that not a county in this state is staffed with a sufficient number of public health nurses. Exclusive of the counties with health departments, only four are providing a syphilis service and one of these without the underlying necessary public health nursing force, only five provide any sort of dental service, and sanitary inspection is provided in but four of our fifty-two up-state counties not having health departments.

The effort that we made last year to increase the number of public health nurses employed by county boards of supervisors must continue. They are currently spread too thinly over the territory and population they have to serve to perform effectively the work called for by a modern program. We have set our goal at 1 nurse for every 5,000 people, which, considering the need, is a very modest objective.

I am sure we should not abandon the principle of generalized nursing, on the other hand it is difficult to see how a nurse employed by a county can limit her work to a restricted territory and its contained population. Only, however, when the nursing force is sufficient to provide generalized nursing on an adequate scale can we expect a public realization of the duties they are performing and the benefits that accrue from them.

It is my hope that the reconstituted committees will universally give the same evidence of interest, and work as actively for public support as have the most effective of those that existed under the former law.

The training of medical and nursing personnel this past year has been materially curtailed because of the necessity of using grants under Titles V and VI, formerly available for this purpose, for the employment of personnel previously trained. During the first two years of the Social Security Act we had considerable excesses above the normal expenditures of the department due to the fact that trained personnel was not available. These surplus funds have been used almost entirely for the training of novitiates in the medical and nursing fields of public health, and for staff members in the specialties who desired training in the broader field.

During the past year ten physicians have completed postgraduate courses at one of the schools of public health, and during the coming year we hope to provide field training for ten physicians, of whom five will be given courses. In addition, school fellowships have been arranged for two city health officers. Forty-three nurses without previous training or experience in public health work completed the combined field and scholastic courses. In addition, twenty nurses completed the supervisory course of four months and nineteen others the special courses in pediatrics or school nursing.

The funds for these courses have, of course, all come from the federal government, and it is proper that this should be the source. We have

no assurance that the persons so trained and educated will remain in the employ of the state or one of its component municipalities. I am opposed to stipulating any such obligation on the part of the recipients or of the state. Not only is there some doubt in my mind as to the legality of such a stipulation, but it seems a most unwise requirement. To hold a person to a job against his will, against his best interests, can only lead to discontent and a disturbance of morale which may be more costly than the expense of education and training. He should be free and not a bondsman.

On the other hand, this state and its municipalities should be free to seek its personnel wherever the best qualified can be found, whether in this state or another, whether trained under our allotment or that made to another state. Parochialism has no more place in the government service, especially the public health service, than it has in commerce and industry. If the public really wants a comparable efficiency, it must grant government a comparable freedom in the selection of those who are to serve it.

I should not close this talk without saying something of national health affairs and dealing briefly with a subject which is probably foremost in the controversial field of public health.

Shortly after our last conference, a national health conference was called to meet in Washington. Represented were consumers groups—labor, agriculture, miscellaneous occupations—nursing, hospital administrators, welfare workers, medicine, as represented by the Committee of Physicians for the Improvement of Medical Care, by officials of the American Medical Association, and Public Health Administrators. It was a notable gathering. It was presented with a series of reports prepared by the Technical Advisory Committee of the Interdepartmental Committee to Coordinate Health and Welfare Activities of the Federal Government.

Every member of the conference had an opportunity to speak. Most of them held to the realities, but to say that there was not a high emotional content in certain of the contributions would be to deny an obvious fact, and these of course were the ones which were least important and yet received most notice in the press. The impression that I gained, making all due allowance for "packing the court," was that there is a vast social demand for a change in the method of payment and the method of delivery of medical care, that this demand will not be diverted by a distortion of factual material, that attempts to discourage experiment in other methods by means frequently resorted to in the bitter struggle between management and labor result in a resentment that will be detrimental both to the givers and to the receivers of medical care.

No survey by organized medicine is going to convince consumers that the technical committee was wrong and organized medicine right. And the reader of the pleading on either side must be sure that both are talking about the same thing. For example, the technical committee did *not* say that 40,000,000 people were without medical care. It said 40,000,000 belonged to families that received incomes of less than \$800 a year and could not be expected to pay for medical care. It did *not* say each one needed and was unable to obtain such care. The American Medical Association's figure of

40,000 referred to the number of people estimated on the basis of their survey who applied for and were denied medical care. (Vide Leland testimony J.A.M.A. 112 2428 June 10 1939) To me that seems a more serious indictment than anything contained in the report of the technical committee.

We should bear these facts in mind when we are discussing the Wagner national health bill, which is presumed to carry out the recommendations of the Interdepartmental Committee. The bill itself should be read as well as the testimony presented at the hearings before the subcommittee of the Senate Committee on Education and Labor. We should read at least some of the books that present statements and arguments quite at variance from those set forth in the journals of organized medicine.

I am not in favor of the Wagner bill in its present form—but not for the twenty two so-called reasons promulgated by the American Medical Association. Among these are statements of opinion and of advice plus at least one not germane to the subject under discussion.

I believe there should be a single federal health authority whether it be an independent agency or a department of cabinet rank that the present procedure for obtaining grants should be simplified rather than further complicated that, except for very broad purposes, the appropriations should be aggregated that the

segregation should be at the discretion of the administrative officer rather than of Congress. He will have to justify his allocations in any event on the basis of his knowledge and experience.

I believe the bill can be changed suitably either by amendment or substitution. I am sure that Senator Wagner welcomes constructive criticism that he wants the bill as finally presented to contain the best possible provisions for the advancement of public health. Mere captious criticism and mudslinging have no place in this discussion.

I have no desire to add fuel to a fire that is producing so much heat and so little light but I do wish to voice at this time a resentment to the implication that men and women in public service are any less worthy in education in capacity in attention in interest in devotion to duty than those who are in what we call "private life." I resent the imputation that a salary stultifies that we must receive a fee for every service rendered or else perform it grudgingly or inefficiently or both. This is no more true of the medical and the nursing professions than it is of those who are by established custom paid for their services in this way.

Granted a satisfactory standard of living the remaining satisfactions are not those derived from monetary income but from an appreciation of work well done.

## The Sale of Death Reports

OFFICERS of several of the county medical societies of New York City are a bit critical of the plan of the City Health Department to make available to insurance companies confidential reports of physicians on the causes of death even under an agreement that the information be used for statistical purposes only and not in the settlement of death claims says a report in the *New York Times*.

Dr. Howard Fox, president of the New York County Medical Society, said he would have voted against the plan if he had been a member of the special committee of the Board of Health that decided to make available the data to the insurance companies. The special committee of five voted 3 to 2 to permit the Metropolitan Life Insurance Company to obtain the reports under the stipulation that they will be used for statistical purposes only. Payment of fifty cents a case is to be made and the service is available to other insurance companies.

"I would have voted against the plan," Dr. Fox said. "However it is an accomplished thing now and we will have to wait to see what happens. If the insurance companies play fair there is nothing to get excited about. If improper use were to be made of the information by the companies, the medical profession would oppose letting them have these statistics."

Dr. Haven Emerson, former Health Commissioner and Dr. John E. Jennings, surgeon, were the two board members who opposed the plan. The three who favored and carried it into effect through their votes were Dr. John L. Rice, Health Commissioner; Dr. Thomas M. Rivers, former director of the Rockefeller Institute, and David M. Heyman, lay member. Dr. Rice

broke the deadlock by casting his vote of approval.

Dr. David J. Kaliski, chairman of the Coordinating Council of the five county medical societies, said he neither approved nor disapproved of the plan now.

He thought it would be well to wait and see how it worked out in view of the fact that the Health Department had already decided to furnish the data to the insurance companies for scientific purposes only.

Dr. Joseph Wrana, president of the Queens County Medical Society, said he was opposed to the action of the majority of the Health Department committee. He said it would have been better to have listened to the views of the recognized medical men on the committee instead of to the lay members or Dr. Rice, who he said was an administrative health official and not one particularly close to the active practitioner.

Dr. Frederick M. Schwerd, president of the Richmond County Medical Society, said:

"It is a breach of the secrecy that was supposed to surround these confidential reports. I don't think the causes of death are the business of insurance companies when such data are part of the confidential reports made by physicians to the Health Department. The Board of Health should be able with its statistical staff to make the necessary study and tabulations of mortality tables and make public results thought desirable."

The action of the Board of Health was upheld by Dr. Lago Goldston, executive secretary of the New York Academy of Medicine. The Academy of Medicine was largely responsible for the organization of the new plan by which doctors

make "confidential" reports to the Board of Health on causes of death among their patients in the interest of assembling more accurate mortality statistics

Dr Galdston revealed that the board had not approved the Metropolitan's request for use of the statistics until a full study of the question of "how confidential should the 'confidential' records on causes of death be kept" had been made by the academy's committee on public health. He said the committee had decided that use of the word "confidential" in the amendment to the sanitary code covering the new types of report "should not be construed to mean that data thus collected should be denied to agencies anxious to use them to promote public health."

In view of these circumstances, Dr Galdston said he thought any public alarm over the Board of Health's action was wholly unnecessary. He noted that any comparison between the evil and good use an insurance company might make of

the data could best be exemplified by the figure of "a flea on an elephant's back." He noted, however, that the opening of the records to the Metropolitan might cause legitimate concern in the medical profession over the inviolability of confidences between doctors and their patients.

Dr Galdston said that the new type of death record had been instituted in Manhattan and the Bronx on January 1 as an experiment full of great potentialities for public health through the accurate determination of the causes of mortality. But he said the new plan, which confined the records available to the public to the natural causes of death, would have seriously hurt the extensive actuarial records kept by the Metropolitan unless the "confidential" data were made available to it also. Dr Louis I. Dublin, chief statistician for the Metropolitan, who directed the negotiations with the Board of Health, later said that this represented the company's position.

## County News

### Albany County

Aid to the more isolated sections of China, devastated by guerilla warfare, has been undertaken by the Albany Council for Aid to China.

The council has enlisted the cooperation of several Albany doctors, who will contribute discarded surgical instruments, medicines, and other supplies.

A layman who lives in Slangerlands, Mr Clifton G. Smith, writes:

"I have an item which I believe is worthy of note in your medical journal.

"My family has just brought to mind the fact that our family doctor has attended us for five generations on the paternal side, which I believe is quite rare, particularly in a young doctor's practice.

"Dr Harold A. Lucas, 200 Lancaster Street, Albany, has attended my family from my great-grandfather to the present generation when on December 16, 1938, he delivered to my wife a son. Being all on the paternal side I believe this to be quite rare."

### Clinton County

Tribute was paid to the memory of Dr Robert S. Macdonald by the staff of the Champlain Valley Hospital at the meeting held July 11. The following resolution was adopted:

"The Medical Staff of the Champlain Valley Hospital records with sorrow the passing of our colleague and good friend, Doctor Robert Stevenson Macdonald, who departed this life June 4, 1939.

"Doctor Macdonald was appointed attending surgeon to the Champlain Valley Hospital at the time of the first organization of the staff. His ability and energy not only won for him an outstanding reputation, but contributed in no small part to the success of the hospital and to the high standing it enjoys.

"We, as members of the staff, feel a great sense of personal loss, as we have no longer his wise counsel and guidance. His sympathetic understanding of the ills of the patient and his extensive knowledge of medicine and surgery endeared him to those who applied to him for

help. His outstanding skill in surgery was recognized by all who knew of his work.

"We know that his position on the staff will not be filled but the memory of his life and professional attainments will be a constant inspiration to all those who carry on the work of the hospital."

### Delaware County

Dr James A. Holley, Walton's oldest practicing physician, has just had published a book dealing with his experiences as a country doctor.

### Erie County

Samuel A. Matthieu, executive secretary of the Erie County Medical Society, died on July 22 at his home in Buffalo at the age of sixty-seven. Mr Matthieu had held the post thirteen years and had served under twelve presidents of the Society.

Mr Matthieu was a leader in the fight to break up fake health schools that flourished in Erie County ten years ago. He also aided the Department of Education in stopping violations of the Medical Practice Act, according to Dr Harry C. Guess, who was president of the association last year.

Mr Matthieu introduced public-speaking classes for physicians. He kept a close check on publicity affecting the medical profession.

### Greene County

The midsummer meeting of the Greene County Medical Society was held at Ledge End Inn, Haines Falls, on July 11 and was largely attended.

The meeting was preceded by a dinner, at which there were 44 physicians and their wives present.

The president, Dr George L. Branch, of Catskill, presided at the meeting which followed the dinner. The principal speaker was Dr Arthur M. Dickinson, of Albany, president of the Third District Branch of the New York State Medical Society.

Dr Marion K. Colle, of Catskill, vice-president of the society, gave a talk on "Socialized Medicine," and Dr Ingraham, of Kingston,

deputy state health officer spoke along the lines of his duties.

Dr Z William Colson of Boston, Massachusetts was another speaker

#### Monroe County

The Monroe County Medical Society is pledged to support legislation for a statewide fireworks ban.

The society's governing board by assuring the National Society for the Prevention of Blindness of the medical group's support of model legislation aligned the doctors with police and health officials and legislators who hope to halt the sale and discharge of fireworks.

Also backing proposed state legislation is the Bye Conservation Committee of the County Tuberculosis and Health Association.

#### Niagara County

Members of the Medical Society of the County of Niagara, at a special meeting at the Hotel Niagara at Niagara Falls on July 11 heard a discussion of a group indemnity insurance plan for doctors, and later postponed final consideration of the proposal Dr Harvey P Hoffman and M. C. Bartholomew attorney both of Buffalo discussed the insurance plan

#### New York County

Lewis J Valentine Police Commissioner is sued a general order on July 14 to inform the department that a licensed physician with a membership card of the Medical Society of New York, Bronx Kings or Queens County the Osteopathic Society of the City of New York or the Homeopathic Society of the State of New York is entitled to park his car in front of any house where he is attending a patient.

Automobile insignia of the societies, Commissioner Valentine said, would serve further to identify such vehicles.

#### Oneida County

Dr Terry M. Townsend president of the State Medical Society reviewed the work of the society for the year and discussed the Wagner bill relating to socialized medicine at the meeting of the Oneida County Medical Society at Trenton Falls on July 11.

Dr Joseph Lawrence of Albany state executive officer reviewed recent legislation.

Dr Ward W Millias of Rome was designated to organize a Woman's Auxiliary Dr Millias is chairman of the public relations committee.

The business session preceded the society's annual dinner and outing. Fifty six members and guests were present.

The physicians approved a resolution to appoint a special committee to consider employing a full time paid secretary who also might serve as executive secretary of the Utica Academy of Medicine.

Dr Gregory president, presided at the business meeting Dr T Wood Clarke, of Utica, was appointed to handle all society publicity. The next meeting will be held in October in Rome.

The pen used by Governor Lehman to sign the bill permitting nonprofit medical indemnity insurance and an accompanying certificate to that effect hang in a frame on a wall of the Hospital Plan office in Utica, and were presented

to Harold C. Stephenson, managing director of the plan, in recognition of his efforts in behalf of the bill.

Under the sponsorship of the Oneida County Medical Society and the Utica Academy of Medicine the medical plan is being formulated there. The plan will give coverage for surgical bills in the hospitals and physicians' care in the home, office or hospital.

Local physicians in formulating the local plan will include medical examinations x rays, all surgery and care for practically every type of illness for all members of the family.

While the service will be offered in conjunction with the nonprofit hospital plan, the medical division will have a separate board of directors, the majority of whom will be physicians. The same staff and offices will be used for both. Every effort will be made to keep down overhead so that the benefits will be available at low cost.

#### Queens County

There has been some misunderstanding among neighboring county societies, radiologic societies, and individual practitioners concerning the nature aims, and conduct of the x ray exhibit being sponsored at the New York World's Fair by the Medical Society of the County of Queens, according to an editorial in its *Bulletin*. Objections to the exhibit include the opinions that the paper film used is inadequate for complete diagnosis, that the project directly and unfairly competes with private roentgenologists and that positive findings on the plates taken have led to costly diagnostic checkups which disclosed no pathology.

Unfortunately some of these opinions have resulted from unauthorized and inaccurate publicity over which the Society has had no control in the public press. Steps have been taken to eliminate this source of misinformation to the public and the profession.

To the objection that the medium being used is inadequate for complete diagnosis, remarks the *Bulletin* we may state with the backing of considerable weight of competent roentgenologic opinion that it is at least sufficiently accurate to disclose any pathology of importance. Further more, it should be made plain that no attempt at complete diagnosis is made or intended. Pathologic x ray findings are simply charted by means of symbols in the reports that are being sent out, with the recommendation that any further indicated diagnostic measures be carried out by the family physician of the subject.

Since further indicated diagnostic measures may and most frequently do include re-x ray using celluloid film it can be seen that the undertaking not only does not compete with the private roentgenologist but may actually direct to him work which he would not otherwise obtain.

As for the idea that unnecessary concern and expense have been caused by the finding of certain abnormalities which could not be substantiated by checkup is it not clear that any diagnostic procedure giving a negative result could likewise be considered a source of unnecessary expense? Is not the very reason for performing the checkup the chance to substantiate or disprove the original findings? In the majority of cases such substantiation has actually been forthcoming.

In view of the admitted differences of interpretation to which certain borderline findings on a given x-ray plate are subject, even in the hands of the most experienced of roentgenologists, it does not seem reasonable to condemn the entire project, concludes the *Bulletin*, because an occasional interpretation has not been borne out by confirmatory procedures

Dr Jeremiah Sweetser Ferguson, of 1 Malba Drive, Malba, secretary emeritus of the faculty of Cornell University and long a general medical practitioner, died on June 30 after a long illness in New York Hospital. He was sixty-eight.

Dr Ferguson was an obstetrician and pediatricist in Manhattan and was attached to the Willard Parker and Gouverneur Hospitals. He formerly was director of pediatrics at Gouverneur Hospital and was a consulting physician there at the time of his death.

For many years he lived and practiced at 330 West 28th Street, in Manhattan. About fifteen years ago he moved to Malba. He was for more than forty-five years an examiner for the Metropolitan Life Insurance Company. The author of a textbook, "Normal Histology and Microscopical Anatomy," published in 1905, he had contributed many articles to medical journals.

#### Rockland County

The Medical Society of the County of Rockland held its regular summer meeting on Wednesday afternoon, July 12, at the Rockland Country Club, Sparkill, New York. About 45 members were present.

For the scientific session Dr Sydney P. Schwartz, of New York City, attending cardiologist at the Montefiore Hospital, in Bronx, presented a very interesting and practical talk on "Treatment of Acute Cardio-Vascular Emergencies," which was well received.

Following the meeting, the doctors enjoyed a steak supper which was served in the clubhouse. As part of the social session, preceding the meeting, a golf "tournament" (special for M.D.'s only) was held. Dr Ernest Hall Kline, of Nyack, was the winner of the trophy.—*Reported by William J. Ryan, M.D., Secretary*

#### Schoharie County

A special meeting of the Schoharie County Medical Society was held in Cobleskill Library, Cobleskill, New York, on Wednesday, July 19.

The meeting was called to order by Dr Olendorf, president. Drs Charles Rosen, of Fultonham, and Donald R. Lyon, of Middleburgh, applied for membership and were duly elected.

It was moved, seconded, and carried that the Comitia Minora with the Committee on Workmen's Compensation meet and simplify, as far as possible, the symbols now claimed by our members and submit the result to each one for approval.

In a talk by Dr R. D. Champlin, D.S.H.O., he suggested that we join with Delaware County in arranging for a series of five lectures, one to be held each week at 2 P.M. in Cobleskill, and in the evening in Walton.

It was moved, seconded, and carried that an Infant and Preschool Consultation Clinic be arranged for the early fall.

A most excellent and instructive lecture on Cancer was given by Dr William J. Hoffman, Am. Cancer Res., Acad. Med. M., Al. Mem'l, Asst. Surg. Skin & Cancer Unit P.G., Consul. Neoplastic Dis. & Chief Tumor Clin. St. John's L.C., Asso. Surg. & Dir. Tumor Clin. Queen's Gen'l. A very wonderful demonstration of cures and plastic surgery was shown by lantern slides.—*Reported by H. L. Odell, M.D., Secretary*

#### Washington County

The Washington County Medical Society had for its quarterly meeting a social evening at the Hotel Willard, Cleverdale, on Lake George, on July 11.

The doctors, their wives, and families enjoyed the late afternoon on the lake, had dinner at the hotel, and after dinner Dr G. Scott Towne, of Saratoga, spoke of his trip to Alaska and showed movies of that interesting country.—*Reported by D. M. Vickers, M.D., Secretary*

### Deaths of New York State Physicians

Name	Age	Medical School	Date of Death	Residence
Carl L. Ambros	66	Cornell	July 23	Bronx
George D. Clift	88	N. Y. U.	April 7	Purdy Station
Edward M. Dooley	79	Niagara	July 20	Buffalo
John W. Fitz-Gerald	67	Trinity, Toronto	July 12	Buffalo
Edward F. Fusco	29	P. & S., N. Y.	July 23	Bronx
Isaac E. Greenberg	46	L. I. C.	July 22	Rockaway Beach
Hall A. Kellogg	30	Rochester	April 23	Rochester
Francis M. Kujawa	46	Buffalo	July 12	Buffalo
Augustus S. Lowsley	53	Virginia Med.	July 17	Flushing
Lynn A. Martin	75	N. Y. Hom.	July 20	Binghamton
Robert J. McGuire	54	Syracuse	July 23	Syracuse
Arthur B. O'Brien	47	Buffalo	July 6	Rochester
David Ruslander	33	Buffalo	April 29	Buffalo
James C. Sharkey	72	Albany	July 5	Rensselaer
Heinrich Vogel	64	Koenigsberg	July 19	Manhattan

# The Woman's Auxiliary

To the Medical Society of the State of New York

## County News

### Erie County

It was a pleasure to welcome on June 23, 1939 the newly formed unit of the Woman's Auxiliary to the Erie County Medical Society. Two hundred interested doctors' wives assembled for this occasion in the Terrace Room of the Hotel Statler Buffalo.

Mrs. Carlton Wertz, the chairman of the organizing committee presided and introduced the guest speakers: the president of the County Medical Society, Dr. C. E. Wertz and Dr.

James H. Borrell, president-elect of the New York State Medical Society. Our president, Mrs. G. Scott Towne, brought greetings from the state auxiliary and also gave the auxiliary's history. Mrs. Luther H. Kice spoke of its objectives.

The meeting was followed by a delightful tea and social hour.

—Reported by Mrs. Luther H. Kice

## Public Health Notes

J. ROSSLYN EARP, L. R. C. P., Dr. P. H.

New York State Department of Health

### This Report Business

You may be interested to know how the paper work with which you are burdened by the State Health Department looks to the fellow who has to file the reports which you work out. The following reflections were not intended for your eyes but have been lifted from the monthly story sent by one of our assistant district health officers to his chief in the central office.

The usual amount of time following up on delinquent reports, incomplete reports and supplementary reports was spent during the month. Most of the personal visits to the physicians and health officers, necessary to keep our records complete, are follow-up investigations of undulant fever and pneumonia cases or visits to obtain data for the laboratory because the physicians overlooked proper identification on specimens submitted for examination. Every now and then I have to visit a physician regarding his failure to report a case of syphilis. These

visits are usually necessary because the physician hesitates, in the face of low Wassermann titers to call a case syphilis and procrastinates until he talks it over with one of us. As a rule the physicians in our district are very cooperative and courteous and I have yet to meet one of them who is unwilling to assist us in our work.

The same assistant district health officer comments that no vaccination clinics have been held in one of the cities in his district in recent years because the local health officer, 'an old practitioner' does not believe in injecting foreign substances into people's bodies. Fortunately he is not so strongly prejudiced against smallpox virus as he is against some of the other prophylactic agents. Consequently he was willing to deputize the state's medical officer to vaccinate his people for him and arrangements were made for a clinic to be held under these conditions to the satisfaction of all.

## MEDICAL OPPORTUNITIES

### Internships

There is an opening at the main hospital station of the International Grenfell Association at St. Anthony, Newfoundland for a recent hospital graduate, single, to serve as House Officer from October 1, 1939 to October 1, 1940. Modern, 80-bed hospital. Applications should be addressed to Staff Selection Committee, International Grenfell Association, 156 Fifth Avenue, New York City.

The Ryder Hospital in Humacao, Puerto Rico has a position for an assistant medical director. This is a 50-bed hospital under the

auspices of the American Missionary Association Division of The Board of Home Missions of the Congregational and Christian Churches. Fred R. Brownlee, General Secretary, 237 Fourth Avenue, New York City. Applicants must be graduates of class A medical colleges with at least one year's rotating service in a hospital recognized by the American Medical Association. While denominational lines are not drawn in selecting the staff, only physicians of proved character, wholesome religious interests and a desire for humanitarian service should apply. Income will depend on age and experience of the applicant, beginning at \$1,500.



# Hospital News

## Light and Dark Sides of the Irish Hospital Sweepstakes

SINCE November, 1930, there have been twenty-six Irish Hospital Sweepstakes which have produced approximately \$67,238,815 for the hospitals of Eire. These same sweeps have also paid out \$223,041,140 in cash prizes to 67,909 winning ticket holders and 18,058 sellers of the winning tickets, writes Arthur E. Mann, of London, England, in *Hospital Management*.

It is reported in the press that the Irish hospitals have received some \$20,000,000 of the \$67,000,000 realized for them, and that the balance will be used in a great program of building and rebuilding that will sprinkle the isle with a splendid system of hospitals. That is the bright side.

The one great drawback to the heavy financing of the Irish hospitals through the proceeds of the sweepstakes, Mr. Mann tells us, has been the resulting tendency of hospital expenses to increase much faster than nonsweepstakes income. The prospect of such easy money has apparently led to an extravagant financial policy on the part of the hospitals. On this point the report of Irish Hospital Commission said:

"It is apparent that the voluntary hospitals are becoming each year more dependent on the proceeds of sweepstakes and that the policy of paying the annual maintenance deficits has had a decided effect on hospital methods of controlling expenditure. The yearly accounts of the hospitals indicate, and the commission's investigations confirm, that in many of the hospitals there is a marked tendency to relax that ever-watchful supervision of spending which is so essential for the economic administration of such

institutions. It was to be expected that maintenance costs would rise when the hospitals were to a large extent relieved, by the phenomenal success of the sweepstakes, of the fears and uncertainties due to the precariousness of their financial position.

"It is when expenditure continues to ascend at what can only be termed an alarming rate that serious misgivings arise as to the justification for the increases. The commission has arrived at the conclusion that so long as the hospitals foresee that their maintenance deficits will be refunded out of the Hospital Trust Fund, and that there is not any immediate possibility of their having to finance such losses of themselves, thus long will expenditure continue on the upgrade."

The immediate cause of the initiation of the Irish Sweepstakes was the bankrupt condition of those hospitals which depended largely upon voluntary subscriptions for their existence. The aftereffects of the World War, plus the further disruptive results of the Anglo-Irish War and the succeeding internal strife, had left the hospitals in a position where it was almost impossible for them to remain open, much less buy new equipment.

An example of the immediate benefit of the sweepstakes to the hospitals is shown by reference to one which serves a particularly poor quarter of Dublin. During the four years preceding the first sweepstake it had managed to raise \$15,000 above its usual income by bazaars and similar functions. It received \$150,000 from the first sweepstake alone.

## Hospital Wallpaper

Hospitals are beginning to take advantage of the improvements in the manufacture of wallpaper, according to a report in *Hospitals* (Chicago). The more improved wallpapers are not only of sufficiently heavy stock to ensure against small defects in the plaster wall showing through but are coated with a paint surface which is claimed to withstand a normal amount of washing for a three-year period.

Once a plaster wall has been dented, or dug, or has cracked, it is very difficult to patch well enough to prevent its showing through a paint coat, no matter how much care is used either in patching or painting.

Other advantages of wallpaper are. It can be secured in tints and tone effects which are not attainable with paint, at least not within reasonable cost.

Patterns can be secured for those areas in which a pattern is desired.

The cost of the completed job is approximately one-half that of a good one-coat paint job.

The average room can be papered, cleaned, and ready for occupancy in less than one day in contrast to a minimum of two or three days in the case of paint. In a good private room the saving of two days occupancy may be sufficient to pay for the entire cost of papering.

## Newsy Notes

Roosevelt Hospital, New York City, has its own ambulance service again for the first time since its horse-drawn vehicles were withdrawn from use thirty years ago. For years it has depended upon ambulances coming across Manhattan from the Reception Hospital or Welfare Island, reached from Queensborough Bridge.

Two new ambulances have been purchased with the hospital's funds and will be kept in a building at Tenth Avenue and Fifty-eighth

Street, which was once used as a stable and in which the old horse stalls remain. Operation costs of the ambulances will be shared by the city.

. . .

Only thirty-seven visitors to the World's Fair have received hospitalization in city institutions, although elaborate preparations had been made to take care of many, Dr. S. S. Gold-

water Commissioner of Hospitals, said on July 6.

A report from Queens General Hospital to which the emergency cases have been taken stated that twenty of those treated were from out of town. There has been only one fatality which was due to a cardiac condition.

Describing the sick list as 'astonishingly light,' Dr Goldwater said there was an unexpectedly small number of cases of alcoholism.

'It is perfectly evident that visitors coming here for the Fair have shown good judgment and sound sense,' he added. Those who have not felt well have not come along.

The St. Cecilia Maternity Hospital in Brooklyn, which was opened in 1927 and in later years changed to the St. Cecilia Hospital for Women has ceased to be and is now under the jurisdiction of St. Catherine's Hospital. It has been closed for the past weeks, but will re-open within a few months and will cater only to children.

Carrying more than 1 000 mothers, children and small babies on board, the good ship *Lloyd I Seaman* New York's floating hospital put out from Pier 70 at 22nd St. and the East River on July 3, to open the sixty fourth season of daily boat rides for the underprivileged.

The children, none of whom is more than 12 get busy immediately with the hundreds of deck games and other amusement devices with which the ship is equipped.

Plenty of nurses are on hand to care for the very small babies so that their mothers enjoy a full day of rest on the sun deck as the ship explores the bay and other waters in the vicinity of the city.

The steel ship fireproof and nonsinkable, has a fully-equipped clinic on board where each child is given a medical examination followed by a shower bath, during the trip.

Milk and other nourishing food are provided for those who can tear themselves away from the wonderful sights in the harbor long enough to eat.

The third deck is a 32-bed hospital ward with trained nurses and a doctor in attendance. Here convalescent children are quartered.

The floating hospital is towed, having no

mechanism of her own, but she bravely sports two stacks to give the illusion of power.

She has a bridge too from which Capt. Peter Johnsen grizzled old sea veteran, shouts commands to the tug that pulls his ship down the bay.

Two large murals, executed for the Neponset Beach Hospital for Children of Neponset Beach, Queens under the direction of the Works Progress Administration's Federal Art Project were presented to the hospital at ceremonies on June 29.

One mural entitled *Children at Work and Play* contains thirty nine panels executed by Helen West Heller. The other *Circus* was painted by Louis Schanker.

The panels of *Children at Work and Play* show children in characteristic pastimes sailing toy boats in a lake drinking from a spring feeding birds, and splashing themselves under city fountains during a hot spell. A striking panel of *Circus* shows clowns in action.

Albany Hospital has awarded to women physicians five of its internships and three resident staff posts. Everett W Jones director said it represented the greatest influx of women into the predominantly male field of medicine in the history of the hospital.

It has been the experience of the New York City Department of Hospitals that grossly exaggerated and inaccurate charges and statements come in daily from C.I.O groups. Dr S S Goldwater Commissioner of Hospitals said in commenting on complaints from employees at the city home for the aged on Welfare Island on June 23.

Dr Goldwater described the workers' complaint as unjustified and he denounced two specific charges as a damned lie and pure fiction. The charges were that the eleven complaining workers had to use inadequate toilet facilities and had to share bathing facilities with diseased inmates of the home.

Agitators, he said, continually circulate leaflets and letters about alleged conditions in city institutions.

## Improvements

A \$100,000 modernization project is in progress at Long Island College Hospital Brooklyn, it is announced by Henry C. Turner vice-president of the institution and chairman of the building committee. The improvements include installation of new lighting fixtures, hospital beds, floor coverings two elevators, refrigerators food carts, and a milk formula laboratory. Operating room facilities are being improved and the lobby will be remodeled.

Establishment of a new Cancer Clinic at St. Francis Hospital in Olean is announced by the

Rev Mother Assunta, OSF superintendent of the institution following the installation of a modern unit for deep x-ray therapy in the hospital.

Dr Jan Perillo now connected with the City Hospital in Buffalo has been engaged as roentgenologist.

The De Graft Memorial Hospital in North Tonawanda is contemplating the addition of a new wing and extensive new equipment according to the local press.

# Books

Books for review should be sent to the Book Review Department at 1313 Bedford Avenue, Brooklyn, N Y. Acknowledgment of receipt will be made in these columns and deemed sufficient notification. Selection for review will be based on merit and the interest to our readers.

## RECEIVED

**Bergey's Manual of Determinative Bacteriology** A Key for the Identification of Organisms of the Class Schizomycetes By David H. Bergey, Robert S. Breed, E. G. D. Murray, and A. Parker Hitchens. Fifth edition. Octavo of 1032 pages. Baltimore, Williams & Wilkins Co., 1939. Cloth, \$10.

**Practice of Allergy** By Warren T. Vaughan, M.D. Quarto of 1082 pages, illustrated. St. Louis, C. V. Mosby Co., 1939. Cloth, \$11.50.

**The Ophthalmoscope and Studies of the Fundus Oculi in Important Pathological Conditions** Octavo of 32 pages, illustrated. Southbridge, Massachusetts, American Optical Company, 1939. Paper.

**A Textbook of Surgery** By American authors. Edited by Frederick Christopher, M.D. Second edition. Quarto of 1695 pages, illustrated. Philadelphia, W. B. Saunders Co., 1939. Cloth, \$10.

**Manual of Roentgenological Technique** By L. R. Sante, M.D. Sixth edition. Octavo of 253 pages, illustrated. Ann Arbor, Edwards Bros., Inc., 1939. Cloth, \$4.50.

**Intracranial Tumors of Infancy and Childhood** By Percival Bailey, Douglas N. Buchanan, and Paul C. Bucy. Octavo of 598 pages, illustrated. Chicago, University of Chicago Press, 1939. Cloth, \$5.

**An Introduction to Sociology and Social Problems. A Textbook for Nurses** By Deborah M. Jensen, R.N. Octavo of 341 pages. St. Louis, C. V. Mosby Co., 1939. Cloth, \$2.75.

**A Textbook of Obstetrics. With Special Reference to Nursing Care** By Charles B. Reed, M.D., and Bess I. Cooley, R.N. Octavo of 476 pages, illustrated. St. Louis, C. V. Mosby Co., 1939. Cloth, \$3.

**Varicose Veins** By Alton Ochsner, M.D., and Howard Mahorner, M.D. Quarto of 147 pages, illustrated. St. Louis, C. V. Mosby Co., 1939. Cloth, \$3.

**Nursing Mental Diseases** By Harriet Bailey, R.N. Fourth edition. Quarto of 264 pages. New York, Macmillan Co., 1939. Cloth, \$2.50.

**The Evolution and Organization of the University Clinic** By Simon Flexner, M.D. Octavo of 41 pages. New York, Oxford University Press, 1939. Paper, \$1.25.

**Public Health Law** By James A. Tobey, Dr. P.H. Second edition. Octavo of 414 pages. New York, Commonwealth Fund, 1939. Cloth, \$3.50.

**Treatment by Diet** By Clifford J. Barborka, M.D. Fourth edition. Octavo of 691 pages, illustrated. Philadelphia, J. B. Lippincott Co., 1939. Cloth, \$5.

**Treatment in General Medicine** Edited by Hobart A. Reimann, M.D. In three volumes, and desk index. Octavo of 2834 pages, illustrated. Philadelphia, F. A. Davis Co., 1939. Cloth, \$30.

**The Canned Food Reference Manual** Octavo of 242 pages, illustrated. New York, American Can Co., 1939. Cloth.

**The Clinical and Experimental Use of Sulfanilamide, Sulfapyridine and Allied Compounds** By Perrin H. Long, M.D., and Eleanor A. Bliss, Sc.D. Octavo of 319 pages. New York, Macmillan Co., 1939. Cloth, \$3.50.

**Manual of the Diseases of the Eye for Students and General Practitioners** By Charles H. May, M.D. Sixteenth edition. Duodecimo of 515 pages, illustrated. Baltimore, William Wood & Co., 1939. Cloth, \$4.

**Otolaryngology in General Practice** By Lyman G. Richards, M.D. Octavo of 352 pages, illustrated. New York, Macmillan Co., 1939. Cloth, \$6.

**Diagnosis and Management of Diseases of the Biliary Tract** By R. Franklin Carter, M.D., Carl H. Greene, M.D., and John R. Twiss, M.D. Octavo of 432 pages, illustrated. Philadelphia, Lea & Febiger, 1939. Cloth, \$6.50.

**Treatment by Manipulation** By A. G. Timbrell Fisher, M.B. Octavo of 255 pages, illustrated. New York, Paul B. Hoeber, Inc., 1939. Cloth, \$3.75.

**Medicolegal Phases of Occupational Diseases. An Outline of Theory and Practice** By C. O. Sappington, M.D. Octavo of 405 pages, illustrated. Chicago, Industrial Health Book Co., 1939. Cloth, \$2.75.

**Proctology for the General Practitioner** By Frederick C. Smith, M.D. Octavo of 386 pages, illustrated. Philadelphia, F. A. Davis Co., 1939. Cloth, \$4.50.

**Headache and Head Pains. A Ready Reference Manual for Physicians** By Walton F. Dutton, M.D. Octavo of 301 pages, illustrated. Philadelphia, F. A. Davis Co., 1939. Cloth, \$4.50.

**A Short Story of Cancer of the Breast and Cancer of the Uterus** By Marion E. Anderson, M.D. Second edition. Octavo of 106 pages, illustrated. Clinton, Iowa, The Author, 1939. Paper, \$1.

# NEW YORK STATE JOURNAL *of* MEDICINE

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## *Editorial*

### The A M A Wins

Let us hope that the Federal District Court's dismissal of the antitrust indictment against the A. M. A. will put an end to the discreditable attempt, of which this suit was part, to advance state medicine by denigration of the medical profession. For several years the proponents of federal control of medical practice have attempted to gain popular support by depicting organized medicine as mercenary, autocratic, and inimical to the public welfare. The antitrust action against the A. M. A. was a daring thrust along these lines.

There is no other plausible explanation of this suit. Mr. Thurman Arnold must have known that the American courts have repeatedly held that medicine is not a trade. He must have realized, as so many attorneys, jurists, and journalists did, that application of the Sherman Act to the medical profession "represents an extreme position which does violence to the common understanding of the word 'trade.'" Surely he must have anticipated the court's dictum—that "to stretch an old statute to fit to new uses for which it was never intended would be nothing short of judicial legislation."

Yet Mr. Arnold did launch this suit. He launched it and then offered to let it drop if the A. M. A. would promise to shape its policies according to his dictates. He instituted an action against the medical profession and, before it came up in the courts, permitted his subordinates to go around the country trying the case in lecture halls, over the radio, and in the press. Obviously, Mr. Arnold and those whom he represented were less interested in the merits of his antitrust cases than in discrediting the A. M. A. and forcing it to capitulate to his demands.

As Mr. Arnold probably foresaw, the dismissal of the case against the A. M. A. has not received a fraction of the publicity that accompanied the indictment. Perhaps the same officials who went around the country besmirching organized medicine will now be

sent out to clear it—but we do not counsel our readers to place much hope in this possibility. The damage that has been done will not be undone by those who did it, but by the continued efforts of the medical profession for the public health.

The outcome of this case has more than medical significance. In its broader implications it is a rejection of the principle of judicial legislation and a reaffirmation of the freedom of American enterprise from unwarranted dictation by the executive branch of government.

### Strictly Limited

Early this year the Section of Epidemiology and State Medicine of the Royal Society of Medicine in Great Britain held a symposium on the proper sphere of state medicine. The discussion that took place at that meeting, where speakers and audience had had over twenty-five years of experience and special interest in the subject, indicates strongly that, in a capitalist state, state medicine does not offer a satisfactory solution of medicosocial problems.

The spread of authoritarian government and the appalling willingness of millions of people to submit to its dictates are beginning to revive "obsolete" concepts like personal independence and self-help. At least Dr. Alfred Cox, formerly secretary of the British Medical Association, appears to believe so, for he unequivocally stated that government should not provide free medical service for the entire population. In his own words, as quoted by the *Journal of the American Medical Association*: "In a world which is becoming more and more mechanized, in which the individual tends to become more and more swamped in the mass, it seems to me an imperative duty, whenever we can, to keep our profession free from the shackles of standardization—a condition which is the inevitable result of government control. The proper function of the state, so far as the actual provision of medical attendance is concerned, is to leave it as far as possible to a free profession dealing with a free people—to aid financially those citizens who cannot provide entirely for themselves, and to keep the 'dead hand' of officialdom as far off as possible. I want to make progress without impairing some of the most precious gifts possessed by the ordinary man, namely the desire to help himself, to be independent and a self-respecting and, so far as possible, a self-maintaining citizen. In the field of medicine we desire to minimize state control because it is likely to officialize our profession and consequently lessen its usefulness to the community."

Confirmation of Dr. Cox's observations was forthcoming from other quarters. Dr. Frank Gray, commenting on the security that

salaried physicians enjoy, pointed out that with such security there often comes "rigidity and inertia" Many others added to the evidence that compulsory health insurance has fallen short of the expectations held for it in Great Britain

This disappointment is not confined to the British Isles It is true that no country with compulsory health insurance has ever moved to abolish it. This is partly because obligatory prepayment has usually replaced a very low form of contract practice, partly because no bureaucracy voluntarily relinquishes its hold Whenever government health insurance services are frankly discussed in the countries that have them, however, it is admitted that after a quarter of a century and more they are still feeling their way—and still have not achieved the high level of private practice in the United States

### Progress in Roentgenology

Diagnostic roentgenology has made steady strides since its recognition as an important adjuvant of medicine. Much of this has been the result of new methods of examination, but a considerable part of the progress is now due to additional and different uses of means of examination already established For example, in roentgenology of the gastrointestinal tract, the study of the mass shadow of the organs has been supplemented by the demonstration of the inner relief, made possible by applying the barium thin enough to coat the inner surface of the organ

It is now possible to record several phases of the motion of an organ on one film by means of the kymograph, and thus has widened the use of the x-ray in the study of the heart, the large vessels, and the diaphragm The visualization of the heart chambers themselves, their valves, and the superior *vena cava*, pulmonary arteries, and thoracic aorta has recently been achieved by the injection of a nonradioactive substance, diodrast, into the cubital vein Roentgenology of the soft tissues now aids in the differential diagnosis of soft-tissue tumors Characteristic pictures are produced by hemangiomas and lipomas, the worm-like structure of the former being clearly demonstrable.

Recently planography, or body-section roentgenology, has been perfected. By blurring every shadow except those cast by the plane of the body to be visualized, definite sections of organs can be studied in series Well-defined shadows of various depths of the sinuses, lungs, petrous bones, etc., can be obtained and are extremely helpful in the exact localization of lesions Finally, roentgenologic moving pictures of definite value have resulted from improvements in fluoroscopic screens, lenses, and films <sup>1</sup>

<sup>1</sup> Schatzki, R. *New England J Med* 220: 747 (May 4) 1939

## Serum Sickness Preventable

Serum sickness following the administration of antidiphtheritic and other horse serums may be mild in character or assume the alarming aspects of real shock. The prevention of this anaphylactic phenomenon has been under investigation for some time, but the measures advocated are not always successful.

The work of Voss and Hundt<sup>1</sup> gives promise, however, that something definite may be at hand. They obtained convalescent human serum from patients recovering from the serum sickness which followed the routine dosage of antidiphtheritic serum. This was injected intravenously in amounts varying from 1 to 10 cc in children who had been given therapeutic doses of antitoxin for diphtheria. When administered within twenty-four hours after the first injection of antitoxin, none of the children developed spontaneous allergic manifestations at the termination of the incubation period. Where the convalescent serum was withheld until the third day, and as late as the eighth day, "inverse anaphylactic reactions" occurred, varying from a generalized erythema of short duration to one of "shock-like intensity." These latter patients became completely desensitized.

In commenting on this work, Manwaring<sup>2</sup> states that "their findings suggest that intravenous injection of convalescent serum-sickness serum, given about the third day, might be a feasible method of preventing serum sickness."

<sup>1</sup> Voss A. E., and Hundt O. *Ztschr f Immunitätsforsch u exper Therap* 94 281 (1938)

<sup>2</sup> Manwaring W. H. *California & West Med* 50 397 (June) 1939

## Correspondence

### X-RAY FOR AMENORRHEA

*To the Editor*

In the July 15, 1939, issue of the State JOURNAL, there is an article by Dr. Ira I. Kaplan on *Amenorrhea and Sterility*. In the discussion of this paper, Dr. Hirsch takes exception as to the priority of x-ray treatment given for amenorrhea in such cases as quoted by Dr. Kaplan.

I feel that a man should be given credit when credit is due him. I was present on February 4, 1923, when Dr. Hirsch gave the first treatment to my patient, whom I referred to him, after reading Flatau's and Thaler's articles in

the *Zentralblatt für Gynäkologie*. I showed these articles to Dr. Hirsch, and he consented to give x-ray treatment in amenorrhea a trial.

At that time, I studied the American literature, and could find no articles on this subject, and I therefore feel that Dr. Hirsch deserves the credit for being the first in America to give x-ray treatment for amenorrhea.

Yours very truly,

ERNEST GLADSTONE, M.D.

121 East 60th St  
New York City  
Aug 9, 1939

## Current Comment

Every community has a vital stake and resource in the prosperity of its physicians."—Dr Frederic C Elliott

Organized medicine always has labored for social good. Whether you like it or not the distribution of your services, your security, your part in the social fabric is all too rapidly becoming involved in the general policies of government. Organized medicine stands for your welfare as well as the welfare of the public. You may have been a parasite formerly living off the bounty of the fruits that medical science has garnered for humanity, but if you do not become active in your organization and active in governmental affairs generally, the whole of society, as well as you yourself, will suffer"—Very pertinent and unequivocal current comment by Dr Henry A Luce.

"When a conflict arises between scientific standards and expediency, the politician is bound to choose the latter which he understands and on which his success depends"—*New York Medical Week* is emphatic about this

"He (the doctor) just can't locate all these millions of sick people the surveys are always discovering. As to contract practice schemes, the average doctor feels that hospital insurance may be all right, but in his opinion the doctors who work for group associations, or corporations, are second-rate men. If they weren't, they'd be in private practice. When you get a doctor working on a salary with a fixed income regardless of how much work he does or how he does it, you take away his incentive to better himself"—The Medical Crier in the Mahoning County (Ohio) Medical Society *Bulletin* for June

One of the most essential tasks confronting the department of organization of hygiene of the League of Nations is to prevent epidemics and their dissemination. Asia, the cradle of civilizations, is the cradle of many diseases as well, for this reason a new office has been set up at Singapore destined to centralize all useful information about epidemics and inform, as quickly as possible, the ports of the Far East about their sudden appearance. A powerful radio station at Malabar, on the Island of Java broadcasts daily the communications of the main office in Singapore, which is rebroadcast weekly by nine secondary stations. The Geneva office decided to centralize these broadcasts, they will be made from Geneva weekly, on wave lengths of 16, 23, and 20, 64 meters through the station 'Radio Nations' at 8 40 Greenwich mean time and they will be able to reach the remotest receiving sets"—An item of interest from the pen of the Paris correspondent to the *J.A.M.A.* in the June 24, 1939, issue.

'Every state must adopt at least six separate plans (under the provisions of the Wagner National Health Bill) and for each plan there is an advisory committee, so that the bill will create approximately 300 different boards, largely composed of laymen. Surely the federal health program ought to be consolidated under one head, and each state program ought to be worked out as far as possible under a single state department. The doctors feel very strongly, and I think justifiably, that while the Wagner bill does not itself contain specifically a program of socialized medicine, it is proposed by those who favor a program of socialized medicine and is open to the suspicion that it will afford a vehicle through which they may put their state-controlled medical care into effect.

We should be concerned that no great proportion of the doctors ever become employees of government. I see no reason why the present condition of individual



service should not be preserved, even though we adopt the principle of federal financial assistance (*Italics ours*)

" The sponsors of the present bill seem to exaggerate grossly the lack of hospital service in the United States

Any hospital plan should certainly encourage the construction of private hos-

pitals and their use by public and private patients to their full capacity "—

From the address of Senator Robert A. Taft, speaking on July 11 at the laying of the cornerstone of the Doctors' Building in Washington, D C, and reprinted in full in the July 29 issue of the *J A M A*

### Institute on Diet and Nutrition

Plans are rapidly being completed for the Institute on Diet and Nutrition, which will be sponsored by the Medical Society of the State of New York through its Council Committee on Public Health and Education with the cooperation of the State Department of Health, the College of Medicine and the College of Home Economics of Syracuse University, and the New York Dietetic Association

The list of subjects, which was published in the July 1 issue of the *JOURNAL*, page 1315, includes nearly the entire field of medicine. An excellent group of speakers representing medical schools in New York City, Albany, Syracuse, Rochester, and Buffalo has been secured. The complete list of speakers will be announced in the next issue of the *JOURNAL* and in an early issue of *Health News*, of the State Department of Health.

It has been tentatively decided to hold the Institute on the four Wednesdays during October, taking up three subjects each day and carrying through the full day. A physician and a dietitian will speak on each topic. Their lectures will supplement but not repeat each other. Plans are being made to furnish outlines of all the lectures to those attending, and in some cases copies of suggested diet lists will be provided. Practical demonstrations will be given when it is felt that these will be helpful, especially in the instruction given by the dietitians. The facilities at the new building of the Medical College of Syracuse University, where the Institute will be held, are well adapted for this purpose. Ample opportunity will be provided for submitting questions to be answered by the speakers.

Inasmuch as applications for the Institute are now being received from physicians from various parts of the state, and as it will be necessary to limit the number registered for the course, it is advisable for any physician desiring to register for the Institute to send his application at once to Dr. Thomas P. Farmer, Chairman, Council Committee on Public Health and Education, Medical Society of the State of New York, 206 Sedgwick Drive, Syracuse, New York. The registration fee of \$10 for the course need not be sent at the time of application.

# MULTIPLE TRAUMATIC ULCERS SUPERIMPOSED ON A POSTOSTEOMYELITIC SCAR OF THE TIBIA

## Successful Plastic Repair

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(Surgeon Evangelical Deaconess Hospital Brooklyn New York)

**A** RECENT experience with a case of healed osteomyelitis of the tibia whose chief difficulty was recurrent traumatic ulcers of the tibial scar, resulting in weeks, and often months, of disability, presented some problems of treatment, the final solution of which was considered worthy of record.

### Case Report

J A male, aged 34 Admitted to Sydenham Hospital September 30 1936

**Chief Complaint**—Ulceration of right leg four months jaundice and fever four days

**Present Illness**—The patient had an osteomyelitis of the right tibia 30 years ago It was trephined seven or eight times at Kings County Hospital, Brooklyn. Since then it has been well and free from pain. On May 23 1936 while at work, the patient slipped and struck his right leg upon the bar of a bed. A deep longitudinal laceration was produced which bled profusely Hemorrhage stopped a few hours later. Since then several ulcers developed and the patient has been under more or less continuous treatment. The ulcers sometimes healed and then would break down again. They were not painful and produced very little discharge. On September 26 1936 the patient began to notice that the sclerae were turning yellow. His appetite remained good. There was no abdominal pain. The patient noticed clay-colored stools a week later. He had never been jaundiced before. The patient's wife had left the hospital early in August after having been hospitalized for six weeks with acute jaundice. She had a positive Wassermann.

**Past History**—The patient was in Bellevue Hospital for four months in 1923 for pneumonia (?). When nine years old he had an abscess of the left Scarpa's triangle.

**Physical Examination**—Patient is well developed and well nourished. Temperature 101.6 F pulse 80 respirations 20 Eyes, sclerae jaundiced. Pupils equal, regular and react to light. Mouth shows jaundice of the palate and postnasal drip. Heart sounds are normal.

Abdomen is negative *Extremities* The left thigh shows a scar in Scarpa's triangle, apparently from an old incision. Over the right tibia is a long cicatrix that is adherent to the bone. At several points the bone is exposed through round dry ulcers of the scar (Figs. 1 and 2)

**Impressions**—Traumatic ulcers of postosteomyelitic scar over the right tibia. General infection? Lues? Catarrhal jaundice?

**Preoperative Course**—The patient was put on a fat free diet, and the following laboratory findings were determined

Urine Specific gravity 1021 alkaline a trace of albumin no sugar a few epithelial cells bile positive occasional WBC.

Blood Icterus index 75

**Chemistry** Urea nitrogen 63  
Glucose 94

**Culture** Negative

**Count** RBC—4 120 000  
Hemoglobin—81%  
WBC—7,200  
Neutrophils—62%  
Basophils—3%  
Eosinophils—4%  
Lymphocytes—27%  
Large monos.—4%

**Wassermann and Kahn** Negative on several occasions

**Van den Bergh** Direct positive 2.0 units  
Indirect 1.0 mg per 100 cc

**Feces** Negative for blood after a meat free diet  
Much undigested fat

**Cerebrospinal fluid**

Sugar reduction 4 plus  
Five cells per cc. (lymphocytes)  
Wassermann and Kahn—negative  
Colloidal gold—1-1-1-0-0-0-0-0-0-0  
Smear and culture—negative



FIG 1 Photograph of ulcerated bone scar of tibia showing several deep ulcers whose bases are necrotic bone

*Roentgenograms*—These showed decalcification and beginning absorption of the shaft of the right tibia, and roughening along the outer border of the tibia with elevation of the periosteum—suggestive of an old inflammatory change in the tibia. The roentgenologist thought that the changes were probably luetic, but this opinion was not supported by clinical or laboratory reports.

After three weeks of observation and treatment, the jaundice (icterus index 17.5) and temperature subsided, the ulcers were clean, and the patient was made ready for operation. It was felt that in view of the fact that this area was repeatedly subjected to trauma, simple healing of the ulcers was an insufficient objective, and that some method aiming at a permanent result should be devised.

Accordingly, on October 26, 1936, under avertin anesthesia the following operation was performed:

An elliptical incision was made to parallel the entire osteomyelitic scar, detaching skin and subcutaneous tissue from the scar. Following the elliptical incision, the skin and subcutaneous tissue down to fascia were mobilized away from the long bone scar far out to the sides and posteriorly. Then with the aid of an Albee motor saw, after retracting the mobilized tissues, an elliptical plate of



Fig 2 An enlargement of Fig 1, showing to better advantage some healed ulcers in the upper part of the scar

bone about 3 mm thick, bearing the entire bone scar and its ulcers, was removed. The plate measured 20 cm in length by 4 cm at its widest part and 3 mm at its thickest part. Clean cortex and medulla were thereby exposed. Bleeding from this broad surface was moderate and easily controlled. Ragged edges were débrided and the wound was bathed in warm saline. The rest was easy. The skin, which had been previously mobilized and retracted, was now closed over this exposed tibial surface, using interrupted

silkworm gut and silk sutures. A wet dressing of alcohol was applied. The tibia, formerly exposed and subjected to repeated trauma, was now covered completely by a full thickness of mobilized skin and subcutaneous tissue.

*Postoperative Course*—Except for a small infected hematoma at the upper angle which had to be drained, patient did very well. Slight necrosis of the edges of the wound at points crossed by the silk worm gut also delayed prompt and complete healing, small areas of granulation at the upper angle and at the former necrotic points were cauterized with pure silver nitrate. The final result is shown in the photograph (Fig 3). When last seen, October, 1937, patient was doing well and was apparently cured.

### Summary

A case of traumatic ulcers of a post-osteomyelitic scar of the tibia is presented. A radical plastic operation is described which, so far as I have been able to determine, is original.

876 Park Avenue



FIG 3 Several months after operation the tibia is completely covered with full thickness skin and protected thereby from future minor trauma.

### PREGNANCY NOT A CAUSE OF MOTHER'S TOOTH DECAY

Pregnancy is not a cause of tooth decay, but if the expectant mother's teeth need dental attention, it is perfectly safe for her to have it in the opinion of Professor Daniel E. Ziskin of the Columbia University School of Dental and Oral Surgery.

Even the idea that if the expectant mother's diet does not contain enough tooth-building substances for baby's teeth her own will suffer is labeled false by Professor Ziskin.

The association of tooth decay with pregnancy, Professor Ziskin said, is based largely on the supposition that the unborn child, acting in parasite-like fashion, extracts calcium from the teeth of the mother to supply its own needs. This is untrue. Even if through a dietary lack the child absorbs calcium from the mother's body the bones or other placings of calcium storage are affected but not the teeth. The fact that in certain diseased conditions the bones may lose large quantities of their calcium leads some to believe that the teeth are also affected. But there is no scientific foundation for this theory. —*Science News Letter*

### POLIOMYELITIS SITUATION NOT ALARMING

The present poliomyelitis situation is no cause for alarm, says *Public Health Reports* (Washington). With the tourist season in full swing widespread interest in the possible danger from poliomyelitis has been manifested in numerous inquiries to the Public Health Service and to state and local health departments.

A study of the distribution of this disease since January, 1939 shows that the incidence of poliomyelitis remained lower than the expectancy according to the five year median throughout the United States until the recent outbreak in South Carolina. At the present time the condition is apparently on the decline in South Carolina and nowhere else is poliomyelitis sufficiently prevalent to cause alarm.

During the seven week period from April 30 to June 17 reports were received from all states only three states reported cases for each week during that period and only six states reported more than 3 cases for any one week. For the same period, fourteen states reported no cases and seventeen states which had reported one or more cases during the period reported no cases for the week ended June 17.

# THE ATYPICAL SURGICAL ABDOMEN

MILTON FRIEBERG, M D , and RUBIN L SIEGEL, M D , Brooklyn, New York

**T**HE atypical surgical abdomen is, and probably always will be, one of the greatest problems in medical practice. It is with the desire of emphasizing such findings, clarifying some of the problems, and revealing some of the pitfalls of diagnosis, that this paper is presented.

In order to gain this end, we have reviewed the records of the last 1,000 laparotomies performed at Trinity Hospital and some of the pertinent literature.

It would probably be best before beginning any discussion to define our terminology. To us, the typical surgical abdomen is one that presents a classic history, symptoms and signs of a common surgical condition. Such a definition would throw into the typical group conditions such as acute appendicitis with a history of acute onset of generalized abdominal pain, which later localizes to the right lower quadrant and which presents on physical examination tenderness, spasticity, and rigidity in the right lower quadrant, acute cholecystitis, strangulated hernia, perforated peptic ulcer, intestinal obstruction, etc., each with its typical picture.

With such a definition of the typical, the atypical abdomen may be discussed as falling into three different groups. First is the abdomen, which presents a common surgical condition with atypical symptoms and signs, Group II contains those cases which are not surgical in nature but which present findings typical of the surgical abdomen, Group III contains those pathologic states which, although surgical in nature, are unrecognized because of rarity, although they may present the typical symptom-sign complex for those conditions.

The percentage of errors in diagnosis at Trinity Hospital due to atypical findings is no greater, we believe, than

noted at the average general hospital. However, it must be emphasized that it is from errors rather than correct diagnoses that the medical knowledge and surgical judgment of the clinician is expanded.

The last 1,000 laparotomies performed by the surgical service of Trinity Hospital were reviewed. Of these, 237 fell into our atypical classification. Group II, that is, nonsurgical conditions producing pictures of surgical abdomens, yielded 150 of these cases, or 63 per cent. Group I, consisting of common surgical conditions with atypical symptoms and signs, yielded 76 of these cases, or 32 per cent. Group III, containing the rare surgical conditions, yielded 11 cases, or 5 per cent.

Examination of Table 1 reveals the types of operations planned preoperatively, the number of typical and atypical cases, and their group distribution.

Table 2 is an analysis of those cases that fell into Group I of our atypical classification. It shows the number that fell into this group because of lack of signs, atypical signs, and unusual symptoms.

We will now report 2 cases which, in our opinion, exemplify this group of common surgical conditions with atypical symptoms and signs.

*Case 1*—A 12-year-old boy (Hosp No 20976), who was admitted on July 26, 1936, complaining of mild abdominal discomfort of seven days' duration localized chiefly to the right and 1 inch below the umbilicus, with slight nausea and vomiting, and several bowel movements during the week preceding admission. Physical examination revealed a well-developed young male, somewhat toxic in appearance, no apparent pain or discomfort, temperature 101.2 F, pulse 108, respirations 28. Examination of the abdomen revealed moderate distention, slight tenderness in the right lower quadrant, with no

TABLE 1—ANALYSIS OF 1000 LAPAROTOMIES ON THE SURGICAL SERVICE OF TRINITY HOSPITAL

Types of Operations Planned Preoperatively	Total Numbers of Each	Number of Typical Cases	Number of Atypical Cases	Group I*	Atypical Group II†	Group III‡
Appendectomies	722	531	191	42	145	4
Cholecystectomies	133	120	13	0	2	3
Closure of perforated peptic ulcer	24	24	0	0	0	0
For intestinal obstruction	50	40	1	3	0	1
Hysterectomies	17	15	2	0	2	0
Salpingectomies for ectopic pregnancies	10	0	1	0	1	0
Nephrectomies	0	0	0	0	0	0
Gastroenterotomies	5	5	0	0	0	0
Splenectomies	3	3	0	0	0	0
For bullet wounds penetrating viscera	4	4	0	0	0	0
Miscellaneous (exploratory laparotomies excluding intestinal obstruction)	26	0	26	22	0	4
Grand totals	1000	703	297	70	150	11
Percentages		70.3	29.7	7.0	15.0	1.1

\* Group I: Common surgical conditions with atypical symptoms and signs.

† Group II: Nonsurgical conditions presenting a picture of a surgical abdomen.

‡ Group III: Rare surgical conditions.

TABLE 2—ANALYSIS OF GROUP I OF THE ATYPICAL CLASSIFICATION

Types of Operations Planned Preoperatively	Totals	Lack of Signs	Atypical Signs	Unusual Symptoms	Atypical* Laboratory Findings
Appendectomies	42	32	0	4	
Cholecystectomies	0	1	0	5†	2‡
For intestinal obstructions	3	0	0	3	
Exploratory laparotomies	22	0	18	7	

\* Atypical laboratory findings were not considered as sufficient grounds for placing cases in this group.

† Four cases had no previous history of gallbladder disease. 1 case had symptoms resembling peptic ulcer.

‡ Gallbladder visualization was normal.

spasticity or rigidity. No masses were felt. Rectal examination showed slight tenderness in the right iliac fossa. Total white blood count was 16,400 with 81 per cent polymorphonuclears. The urine was essentially negative. On admission, it was felt that the condition was not a surgical emergency and that further developments should be awaited. However, on the following day the patient appeared dehydrated, drowsy and more toxic. He did not vomit nor was he nauseated. Abdominal examination revealed spasticity and slight tenderness in the right lower quadrant. With this progressive increase in abdominal signs it was deemed advisable to explore the abdomen. Laparotomy revealed a perforated gangrenous retrocecal fragmented appendix with pelvic peritonitis. Patient made an exitus from generalized peritonitis on August 10, 1938.

In retrospect, we would like to observe that in a hyposensitive individual, as this patient was pointed out to be, the presence of minimal abdominal signs with a suggestive history should be construed as sufficient indication for surgical intervention. Libman<sup>1</sup> clearly points out that individuals vary in their sensitivity to pain and that the degree of sensitivity can be determined by means of response to his styloid pressure test. The natural sensitivity of the individual, as empha-

sized by Friedenwald,<sup>2</sup> must always be taken into consideration as well as the psychic makeup, in evaluating the degree and character of abdominal pain.

**Case 2**—Although 98 per cent of our cases of acute surgical abdomen presented abdominal pain as the chief complaint, our second case in this group is that of a 9-year-old boy (Hosp. No. 24216) who was admitted to the hospital on September 22, 1937, complaining of headache, nausea, and diarrhea following a laxative, but no subjective abdominal pain. Examination revealed tenderness in both lower quadrants, most marked on the left, with no spasticity or rigidity. Rectal examination revealed tenderness. It was felt that laparotomy was indicated. An elongated acutely inflamed appendix with a bulbous tip was found pointing to the left. Recovery was uneventful.

Because of a long mesocecum, the cecum and appendix in children are freely movable. Also, the appendix in the child is longer than in the adult, adding further to its variety of location. When the appendix extends down into the pelvis, there may be no abdominal signs, and rectal examination gives us our most important method of diagnosis. Occasionally, in children there may be no subjective abdominal pain, but there

TABLE 3 — ANALYSIS OF GROUP II, INCLUDING ONLY THOSE CASES IN WHICH A PREOPERATIVE DIAGNOSIS OF ACUTE APPENDICITIS WAS MADE

Operative Findings	Total Number			Abdominal Rigidity and Spasticity Absent	Percentage Females	Average Age	White Blood Count	
							Percentage Under 12,000	Average W B C.
Fibrous appendix*	109			83 cases	73	17 yrs	78	10,200
Cystic ovaries (including six cases of ruptured follicles)	18			9 cases	100	18 yrs	50	11,000
	L M P							
	14-19 days prior to pain							
Acute salpingitis	8			0	100	25 yrs	0	17,400
Mesenteric adenitis	3			3 cases	33	11 yrs	100	10,500
Osler's visceral disease	3							
Pneumonia	2							
Hydronephrosis—congenital structure of ureter	1							
Acute retention of urine	1							
Grand totals	145							
Compare with Cases of pathologically acute suppurative appendices	577			32 75% of these appendices were in unusual positions	42	21 yrs	22	14,600

\* Pathologic report No other pathology found to account for symptomatology

is discomfort on voiding or bowel evacuation. The local inflammatory process may produce diarrhea by virtue of its irritation, or because of the pain, there may be constipation or urinary retention. At times, because of its additional mobility in childhood, the appendix may extend behind the cecum and cause confusion with renal infections.<sup>3</sup>

Our second group represents those cases in which nonsurgical conditions present findings pointing to the presence of an acute surgical abdomen. Comboe<sup>4</sup> has classified medical conditions which produce abdominal pain, as follows:

1. Metabolic
  - (a) Diabetic acidosis
  - (b) Tetany
2. Cardiovascular
  - (a) Referred pain from heart (angina, coronary occlusion, and pericarditis)
  - (b) Embolism and thrombosis (mesenteric occlusion, subacute bacterial endocarditis, polycythemia)
  - (c) Intra abdominal arterial disease (periarteritis nodosa, aneurism)
3. Hematologic
  - (a) Hemolytic icterus
  - (b) Purpura (Osler's and Henoch's)
  - (c) Sickle cell anemia
  - (d) Splenic enlargements (Leukemia, Banti's, etc.)
4. Infection
  - (a) Occasionally at onset of acute infections (influenza, typhoid, polio, malaria, acute tonsillitis)
  - (b) Dysentery (amebic and bacillary)
  - (c) Rheumatic peritonitis
  - (d) Tabetic crises
5. Gastrointestinal
  - (a) Cholangitis
  - (b) Acute gastroenteritis
  - (c) Pylorospasm
  - (d) Intestinal parasites
6. Genitourinary
  - (a) Dietl's crises
  - (b) Pyelitis
  - (c) Distended urinary bladder
7. Pulmonary
  - (a) Pleurisy
  - (b) Pneumonia in children

8. Abdominal wall disorders
  - (a) Early herpes zoster
  - (b) Intercostal neuralgia
  - (c) Trichiniasis
  - (d) Trauma
9. Hysteria and malingering

This group constituted by far the largest of our atypical groups (63 per cent). There were 150 cases which fell into this group in 145 of which the diagnosis of acute appendicitis was made preoperatively. It is interesting to note that in the 722 cases diagnosed as acute appendicitis, 145, or 20 per cent, were misdiagnosed and were due to non-surgical conditions.

Table 3 is an analysis of those cases in this group that were diagnosed preoperatively as acute appendicitis. Comparison is also made with our cases of pathologically acute appendicitis.

To recapitulate: In 109, or 75 per cent of the 145 cases in Group II, no medical or surgical condition could be found to account for the symptomatology. Our comparison of these cases with those of pathologically acute appendicitis reveals the following facts: (1) abdominal spasticity and rigidity were completely absent in 76 per cent of cases reported as fibrosis appendix, as compared with only 5 per cent in true acute appendicitis, (2) seventy-three per cent of the cases of fibrosis appendix occurred in females, whereas only 42 per cent of true acute appendicitis occurred in females, (3) the average white blood count was 10,200,

as compared with 14 500 in true acute appendicitis. Because of the predominance of this syndrome of abdominal pain and history suggestive of appendicitis in females and its resemblance to those cases in which cystic ovaries were found we would have liked to study further the time of onset of the attack as related to the menstrual cycle, since we believe that some connection may exist. However we found the charts inadequate for such a survey.

Table 4 (A, B, and C) completes the analysis of this group of cases diagnosed preoperatively as cholecystitis, ectopic pregnancy, twisted ovarian cyst, etc., indicating in each instance that the operative findings were other than surgical.

Several of the more interesting cases in Group II of the atypical classification will now be presented.

*Case 1*—That of a 7 year-old school girl (Hosp No 24273) who was first admitted to Trinity Hospital on October 23 1936 complaining of pain in the abdomen and vomiting of one day's duration. There was no history of previous similar episodes. Temperature on admission was 100.4 F pulse 118 respirations 20 and examination revealed a soft abdomen with no tenderness or rigidity. Routine urine examination showed many clumped pus cells. Total white count was 6 400 with 64 per cent polymorphonuclears. The symptoms subsided and the child was discharged after eight days, with the diagnosis of acute gastroenteritis as the principal disease and pyelocystitis as an associated condition. On August 28 1937 ten months later patient was readmitted this time giving a history of sudden vomiting occurring four days prior to admission. Pain was localized to the mid and lower abdomen most severe in the right lower quadrant. During the four days prior to admission there was one complete remission of symptoms for about twenty four hours. On the day prior to admission, the abdominal pain nausea and vomiting recurred. Patient was hospitalized. On admission, the abdomen was soft. There was no tenderness or masses. The symptoms subsided. Three days following admission patient had another episode and this time tenderness and spasticity in the right lower quadrant and right rectal tenderness were found. Symptoms again subsided within twenty four hours. However four days later

TABLE 4

(A) Two cases in which a preoperative diagnosis of cholecystitis was made and cholecystectomy planned:	
Operative Findings	
1	A normal gallbladder. No intra-abdominal pathology found.
2	A normal gallbladder with hypertrophic cirrhosis of the liver.
(B) Two preoperative hysterectomies—one for fibroids the other for twisted ovarian cyst	
Operative Findings	
1	Endometrial hyperplasia without fibroids.
2	4 months gravid uterus.
(C) One salpingectomy for preoperative ectopic pregnancy	
Operative Findings.	
Corpus luteum cyst.	

there was another recurrence with the nurse noting at this time the presence of bloody stools. A definite fullness was felt in the right abdomen at the level of the umbilicus. With each episode of abdominal pain child's temperature rose to 101 F to 102 F. Two blood counts taken during these episodes revealed total white counts of 10 500 and 11 300 with 80 per cent and 81 per cent polymorphonuclears. Urine examination on both occasions was negative. It was felt because of the bloody stools abdominal mass and vomiting that the patient had a partial intussusception. Laparotomy was performed and no intra-abdominal pathology could be found to account for the symptomatology. Appendectomy was performed however from which the child made an uneventful recovery. She was discharged on September 10 only to be admitted again for the third time five days later, complaining of abdominal pain nausea and vomiting. However in addition patient also complained of right lumbar pain at this time. Examination of the abdomen revealed it to be soft with marked tenderness in the right lower quadrant and a positive right Murphy. Catheterized urine examination showed many w.b.c.s in clumps and many r.b.c.s. A retrograde pyelogram revealed a stricture of the right ureter at its point of entrance into the bladder, a right hydroureter and hydronephrosis. The stricture was dilated and the patient's symptoms subsided.

Laparotomy in this case, we feel was perfectly justified. The most important condition to be borne in mind when a child is seized with an acute attack of abdominal pain, is intussusception, because a twenty four hour delay in the diagnosis means death.<sup>1</sup> The severe abdominal pain, the report of blood in the stools, the palpable mass, all pointed to an intussusception. According to Bier,<sup>2</sup> abdominal symptoms due to disease



of the urogenital tract are not uncommon. Likewise, hydronephrosis in childhood is not a rarity. Kretschmer<sup>7</sup> reviewed 101 cases at Presbyterian Hospital in Chicago and found hydronephrosis to be a far more common cause of serious genitourinary disease in children than tuberculosis, tumor, or stone. He observes that a history of recurrent pyelitis or chronic pyuria is very suggestive and should be followed by pyelographic studies. As regards the absence of pyuria in this case, since the specimens of urine were taken during the stages of acute pain, it is probable that at these occasions the right ureter was completely occluded.

*Case 2*—That of a 15-year-old female (Hosp No 24432) admitted on September 13, 1937, with a history of generalized abdominal pain localized in the right lower quadrant, nausea, and vomiting of four days' duration. On the day prior to admission, the pain also radiated down over the right inguinal region into the upper one-third of the anterior aspect of the right thigh. On admission, the temperature was 101 F, pulse 90, respirations 22. Examination of the abdomen revealed tenderness over McBurney's point, with spasticity and rigidity confined to the right lower quadrant. White blood count was 9,800, polymorphonuclears 80 per cent. A diagnosis of acute appendicitis was made, and in view of the abdominal findings, laparotomy was performed at 3 A.M. The appendix, uterus, and adnexa were found to be normal, but the urinary bladder was markedly distended. Subsequent history revealed that the patient had been to a social function four days prior to admission and had not voided for a good number of hours. Preoperatively, patient passed about two ounces of urine with great difficulty.

Most of us are aware that a distended bladder can give signs simulating a surgical abdomen, but few of us consider it when examining a patient. We would like, therefore, to emphasize the importance, when examining a patient suspected of having a surgical abdomen, of a complete genitourinary history, referring not only to the classic symptomatology referable to that tract, but also to the time of last voiding, and secondly, the use of that much-neglected procedure—physical diagnosis, namely, palpation of the bladder.

*Case 3*—In this group is a 15-year-old school boy (Hosp No 16553), who was admitted on February 28, 1935, with a history of pain in the abdomen and vomiting of four days' duration. The pain increased in severity, and on the morning of admission localized to the right lower quadrant. On admission, the temperature was 99.8 F, pulse 92, respirations 26. Examination of the abdomen revealed tenderness, spasticity, and rebound tenderness in the right lower quadrant. Rectal examination likewise revealed right-sided tenderness. Total white count was 13,800 with 76 per cent polymorphonuclears. The diagnosis of acute appendicitis was made and laparotomy was performed on the same day, but no intra-abdominal pathology was found. Six days following laparotomy, purpuric spots on the back, neck, and over all pressure points of the skin were noted. The following day there was a recurrence of abdominal pain, patient vomited a large amount of bloody fluid and passed tarry stools. Obviously, then, the case was one of Osler's visceral disease. With the administration of snake venom, all of the symptoms subsided.

This is 1 of 3 cases of Osler's visceral disease found in our survey, in which a diagnosis of acute appendicitis was made and laparotomy performed. Osler in 1904 was the first to emphasize "the surgical importance of the visceral crises in the erythema group of skin diseases."<sup>8</sup> It is now well known that Osler's visceral disease is often ushered in with abdominal symptoms, and that frequently these cases are suspected, with every reason, to be acute surgical conditions. Unnecessary laparotomies are often performed. At operation, petechiae may or may not be found in the intestinal wall. At times larger hemorrhages are found infiltrating the intestinal wall for several inches, and may lead to intussusception. Severe ovarian hemorrhages have been reported.<sup>9</sup>

*Case 4*—That of a 31-year-old female (Hosp No 23357) admitted May 10, 1937, complaining of pain on the right side of the abdomen. Her illness dated back three years, during which time she had had repeated attacks of nonradiating sharp pain in the right lower quadrant. She had been under observation at the Greenpoint Hospital O.P.D., where a laparotomy had been advised. Periods were regular up to the time of admission. A Z test taken one week prior to admission was said to have been negative.

TABLE 5—ANALYSIS OF GROUP III—11 CASES

Preoperative Diagnosis	Pathology Found
1 case of intestinal obstruction due to adhesions	Dermoid cyst of the mesentery
1 case of gallbladder disease	Carbuncle of kidney
1 case of appendicitis	Peritonitis of undetermined etiology with splenomegaly
2 cases of appendicitis	Perforated malignancies of colon
1 exploratory laparotomy	Dermoid cyst of an ovary
1 exploratory laparotomy	Retroperitoneal sarcoma
1 case of ovarian cyst	Adenocarcinoma of ovary
1 case of appendicitis	Retroperitoneal abscess of undetermined etiology
1 case of gallbladder disease	Echinococcus cyst of liver
1 case of generalized peritonitis	Perforated Meckel's diverticulum (case reported in this paper)

Marital history revealed two miscarriages no children. On examination of the abdomen a large mass was found low in the mid line soft throughout freely movable and about the size of a large grapefruit. On vaginal examination the cervix was found to be firm and small and the above-mentioned mass was again outlined. The diagnosis of ovarian cyst was made and at operation a four-month gravid uterus was found.

The differential diagnosis between a large ovarian cyst and a gravid uterus is often a difficult one and frequently must be based entirely on the history obtained from the patient and the results of the A.Z. test. In this particular case the reliability of neither was ascertained.

The final group to be considered in the discussion of the atypical abdomen is that in which the diagnosis is difficult because of the rarity of the pathologic state. Of the 1,000 cases reviewed only 11 were found to fall into this group (They are charted in Table 5)

*Case 1*—The first case to be presented in this group is one which represents a pathologic state probably not as rare as commonly believed. It is that of a 76-year-old obese female (Hosp. No. 21084) who was admitted with a history of pain in the right lower quadrant of forty-eight hours duration. She had vomited several times. The past history relative to gastrointestinal complaints was negative. On admission the temperature was 103 F pulse 76 respirations 24. The abdomen was obese and distended with marked tenderness in the right lower quadrant. There were no masses palpable and rectal examination was negative. Total white blood count was 25,000 with 85 per cent polymorphonuclears. The surgeon's impression at this time was that the diagnosis lay between a degenerating neoplasm and an acute appendicitis. After sixteen hours observation, the abdomen became markedly distended with exquisite tenderness muscle spasm, and rigidity over the right lower

quadrant. Laparotomy was performed with the preoperative diagnosis of acute appendicitis with localized peritonitis. Generalized peritonitis thought to be due to appendiceal perforation was found. Postmortem examination revealed a perforated adenocarcinoma of the ascending colon.

The above case represents 1 of 2 in which a perforated malignancy simulated an acute appendicitis. It is important to note that in older individuals the possibility of malignancy must always be borne in mind, whether the presenting symptoms be acute or chronic. In neither of these 2 cases was there any past history suggestive of gastrointestinal pathology. In our survey we found only 2 cases of true acute appendicitis in individuals over the age of 60, so that the relative incidence of perforated malignancy as compared with true appendicitis is similar.

*Case 2*—A female, aged 9 (Hosp. No. 24012) entered the hospital on October 2 1937 complaining of left sided abdominal pain in the lower quadrant vomiting and constipation—all of five days duration. On admission there was a moderate degree of abdominal distention with tenderness and spasticity in the left lower quadrant. For the first three days following admission TPR were within normal limits and the abdominal symptoms subsided although no intestinal evacuation occurred. An intestinal obstruction was ruled out because of the gradually subsiding distention the absence of vomiting and the discharge of flatus. During the following six days, no vomiting occurred, but the abdominal distention increased tenderness in the left lower quadrant persisted and rectal examination now showed marked tenderness in the right iliac fossa. Repeated enemas yielded poor results. A Von Pirquet tuberculin test gave a strongly positive reaction and in view of the fact that the father had died of tuberculosis, tuberculous peritonitis was suspected. Right

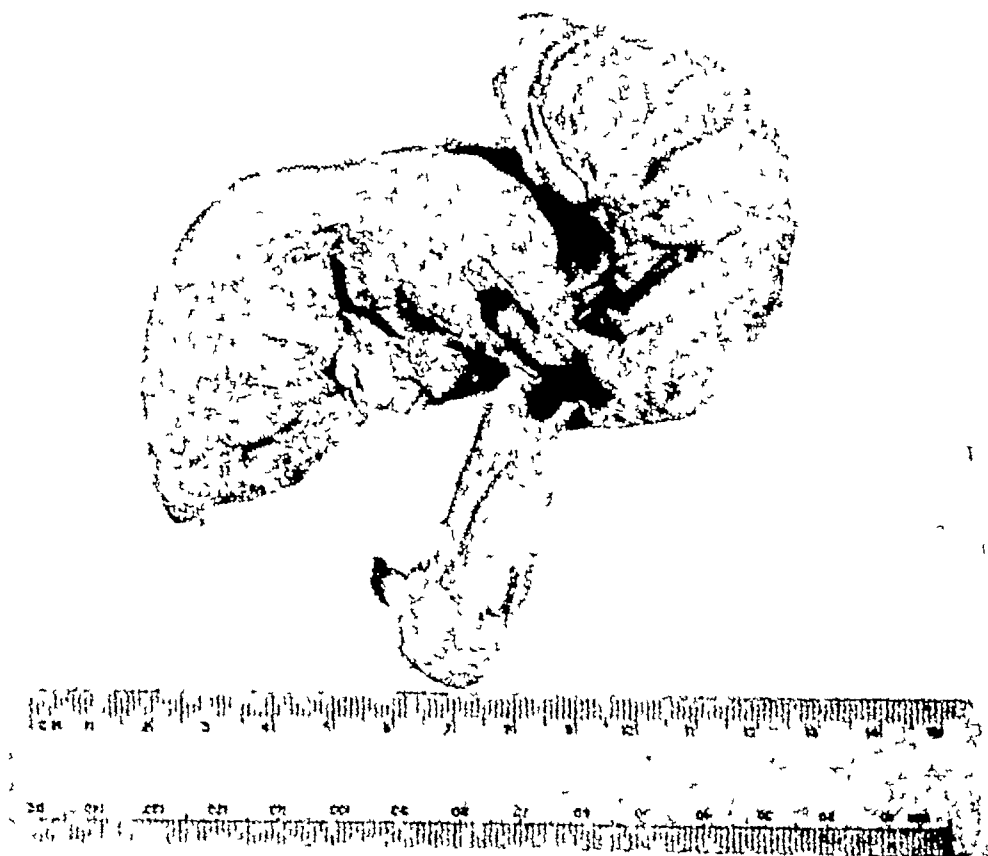


FIG 1 Portion of ileum with a Meckel's diverticulum showing a large perforation at its base. From case reported.

days after admission, tenderness was noted over the left kidney posteriorly, urine showed occasional coarse granular casts, few clumps of w b c's, and many r b c's. On the tenth day, temperature rose to 101.8 F, pulse 140, and remained elevated. The abdominal distention increased. On the fourteenth day, the child began to vomit large quantities of greenish fluid, the abdomen was tense and tender, no flatus was passed. With the thought of an intestinal obstruction being present, laparotomy was ordered, but because the patient was a very poor risk, and because of a last-minute evacuation of flatus, operation was postponed. On the following day, there was generalized abdominal pain, marked distention and spasticity throughout the entire abdomen, and tenderness in the right flank. The picture was definitely now one of generalized peritonitis with paralytic ileus. Following a transfusion, the abdomen was opened with the purpose of performing a cecostomy, and a mucopurulent fecal fluid was seen in the right lumbar gutter. Drains were inserted and the abdomen closed without exploration because of the pa-

tient's poor condition. Exitus occurred twenty-four hours following laparotomy, and postmortem examination revealed a perforated Meckel's diverticulum and a generalized peritonitis.

Although diverticula of the lower end of the ileum had been previously described, Meckel in 1812 was the first to show that it represented a remnant of the vitelline duct which connects the yolk sac and midgut in early fetal life. Normally, this duct atrophies, leaving no sign of its attachment to the bowel. However, in approximately 2 per cent of individuals its disappearance is incomplete and the character of the persistent structure will vary with the degree of obliteration and atrophy. Thus, there can be present an umbilical fistula, an umbilical mucous sinus, a fibrous cord between umbilicus and intestine, a Meckel's diverticulum, an intraabdominal cyst, or an umbilical polyp.

The diverticulum is generally found within the terminal four feet of the ileum and, in 52 per cent of the cases, springs from the antimesenteric border of the gut. It may be lined with intestinal mucosa, duodenal mucosa, gastric mucosa, and pancreatic tissue, or any combination of these elements.<sup>10</sup>

Although anatomists and pathologists, e.g., Cunningham Adams, and Kauffman, report the incidence of Meckel's diverticulum as little over 2 per cent, it is seldom encountered in surgical clinics. McGlennon<sup>11</sup> reports 3 in 1400 laparotomies, and Balfour<sup>1</sup> reports 15 in 10,000 laparotomies, therefore although it is a relatively frequent congenital anomaly, it is not important as a cause of disease, and its routine removal, if found during laparotomy for some other pathologic condition, is not advisable.

Although it does not commonly do so, Meckel's diverticulum can produce a variety of pathologic states. From the mechanical standpoint, fecal impaction can occur,<sup>12</sup> the diverticulum may become incarcerated in a hernial sac,<sup>14</sup> a stricture may form above the diverticulum, or intestinal obstruction may be produced (a) by bowel being caught under the fibrous cord (b) torsion or volvulus around the diverticulum (c) diverticulum wrapped around intestine, (d) intussusception with the diverticulum as a starting point.<sup>13, 18</sup>

Meckel's diverticulum is subject to the same inflammatory processes as the appendix e.g., catarrhal, gangrenous perforative, etc. The symptoms are those of appendicitis, pain being localized just to the right or left of the umbilicus. Wolfson and Kaufman<sup>16</sup> report 4 cases of acute inflammation of Meckel's diverticulum which they observed in a period of seven months. They emphasize as diagnostic features that the course resembles an acute inflammatory or perforative lesion of a hollow viscus plus partial obstruction of the bowel. Distention appears early and is out of proportion to the tenderness and rigidity as compared

with other instances of early peritonitis.

As previously mentioned, gastric mucosa is frequently found in the lining of a Meckel's diverticulum and is active in the production of both pepsin and HCL.<sup>10</sup> As would be suspected from this, penetrating, perforating, and bleeding peptic ulcers may occur.<sup>17, 19, 20, 21, 22</sup>

## Summary

One thousand consecutive laparotomies have been reviewed, the atypical surgical abdomen defined and classified into three groups.

- 1 Common surgical conditions with atypical signs and symptoms
- 2 Nonsurgical conditions which simulate the surgical abdomen
- 3 Rare pathologic states

Group II contained the largest percentage of atypical cases, the greatest offender being the mistaken diagnosis of acute appendicitis.

Various cases exemplifying each group have been reported and briefly discussed.

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# USE OF FLASK AS A SIMPLE AID TO TACTILE FREMITUS

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**T**HE interpretation of fremitus vibrations to the fingers or hands during the act of talking has been on occasion a more or less nebulous sign with a wide range of meaning Unless the pathology is sufficiently extensive, tactile fremitus is frequently a misleading sign because of the failure of a wide area of tactile sense of the hands, as is ordinarily applied, to properly localize small lesions or extensive early ones

An effort was made to find some simple method to give the physical sign of tactile fremitus added significance by an ability to localize a small area more accurately, or to magnify the intensity of vibrations, especially in incipient lesions

Just as the stethoscope has been an improvement over direct auscultation with the ear, so was a modality sought to increase and localize tactile fremitus, if possible, especially for those who have always had some difficulty in eliciting this sign

After experimentation with various containers, a 100 cc Erlenmeyer flask was found to convey the vocal vibrations from the chest wall to the hand in a most satisfactory manner This was found to be especially suitable because of the thinness of the glass, the smooth, small localizing mouth flaring out at the base to cover a large area of palmar tactile endings Less satisfactory was a 75-watt electric light bulb They are easily available and inexpensive.

The flask or bulb is applied lightly to the various regions of the chest wall with gentle pressure on the base with the open palm, ulnar side of the hand, or fingertips (Fig 1), with the patient repeating a short phrase of words or numbers The usual variations exist, of course, in that the right apex is increased over the left, vibrations of adults are stronger than those of chil-

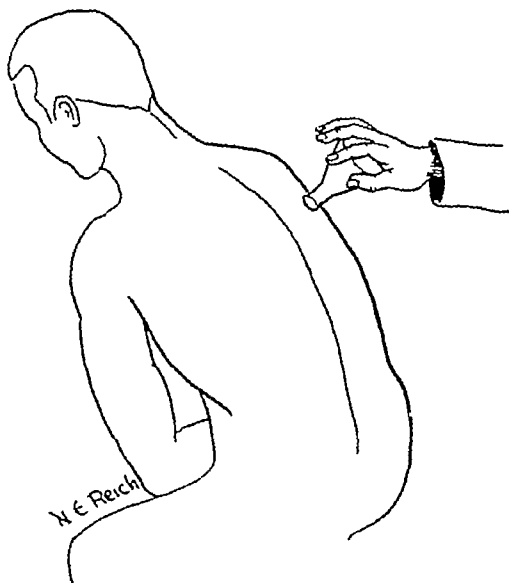


FIG 1 Method of applying flask to chest in tactile fremitus

dren, thin chests transmit better than fat or muscular walls, and male chests are increased over female chests As Cabot points out, comparatively less fremitus is to be palpated over the scapulas in back and still less over the precordium It is increased in the upper part of the chest over the lower part and slightly more accentuated throughout the right chest than in corresponding parts of the left chest The amount of fremitus is relatively increased in emaciated patients or in those with flexible chests

Increase or decrease of tactile fremitus in pathologic conditions also has the same interpretation as that done with the hands only

The use of a glass container, such as an Erlenmeyer flask, is presented as a simple aid to tactile fremitus that can prove useful in helping to localize small or early lesions of the lungs

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# THE PROBLEM OF THE AFTERCOMING HEAD IN OBSTETRICS

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THIS paper will not deal with the theory of breech presentation nor the indications for breech or version delivery. It presupposes that—for what ever reason—there is an aftercoming head. While the subject matter will be confined chiefly to technic, some consideration will be given to the prediction of, and methods of attempting to prevent, certain bad results commonly observed. The writer has long felt that in some of the obstetric textbooks of common usage sufficient emphasis is not placed upon certain vital points which make up the material of this article.

It is reasonable to presume that a multipara, having had relatively uneventful deliveries of head presentations, will probably have good results in another vertex case. This is not so liable to hold true in a subsequent delivery which eventuates in an aftercoming head. The writer has in mind 2 fetal deaths which exemplify this sequence of events. In one of these, a breech presentation, the body and arms precipitated. In the other, a vertex presentation, a very simple version was done at full dilatation after an easy labor. Hence, the obstetrician should not be misled by parity, nor by the smoothness of events immediately preceding the main issue.

The aftercoming head is more liable to give trouble in induced labor, especially that brought on by bag, bougie etc.

In version for abnormal position or presentation, especially transverse presentation, the delivery of the head often constitutes a real hazard. Here again, in a multipara, the history of uneventful parity may belie the real situation. The writer vividly recalls performing version for transverse presentation in a para four who had an ample pelvis and had

had three spontaneous, easy deliveries. Though the conditions for such a type of delivery would seem ideal—full dilatation of cervix, short, easy labor, soft uterus and membranes intact—the cervix became a real problem at the end with resulting fetal death.

The aftercoming head in a macerated fetus, especially if premature, is a potential and often a real menace. The cervix tends to "collar" about the head like a tight, unyielding band, regardless of how spontaneous and easy the delivery may have been up to this point. In spite of the fact that here there is no occasion for haste, one sometimes sees the medical attendant engaging in a series of violent and purposeless tractions. Additional burlesque is furnished when he suddenly finds himself sitting on the floor with the torso in his lap, but the elusive head still *in utero*. After this debacle he is more willing to believe that "It can happen here."

Obstruction in the funnel and android pelvis is a factor. Relative lengthening of the A P diameter in the anthropoid and of the transverse in the platypelloid type must be borne in mind.

Nowhere in the obstetric field is adequate training needed more than in the conduct of a breech or version delivery. Notwithstanding this, we still see the novice scrubbed up—and alone—on a breech presentation.

Also, nowhere in the obstetric field is preparedness of more importance than in a delivery where the head comes last. The obstetrician must not wait until the head is caught before he calls the intern out of bed to help, or asks the nurse to find the forceps. In breech or version delivery, it should be an absolute rule that no matter how simple the procedure may seem the full quota of as

sistants and equipment be ready for almost any emergency before the case is started

The accoucheur in breech or version delivery should *always* have an assistant scrubbed up with him. His willingness to do exactly as he is told is most desirable.

Gas-ether anesthesia is to be preferred, if not available, then straight ether by cone. The main point is to see that the patient is under surgical anesthesia during the time the head is being delivered. In case of dystocia due to tonic uterus, contraction ring, or a poorly dilated cervix, then  $\frac{1}{100}$  gr of atropine and often  $\frac{1}{4}$  gr of morphine should be given, and the patient kept under deep ether for about ten minutes *before* starting the breech extraction or version. In some of these cases spinal anesthesia should be seriously considered.

The position of the parturient on the delivery table is a matter which often receives too little consideration. The buttocks should be at the very edge of the table, maintained there by shoulder braces, with the legs up in stirrups. Sometimes a difficult delivery of the head is facilitated by the nurses releasing the stirrups and extending the thighs a time or two during the extraction.

The bladder must be emptied by catheter by the operator or assistant, after scrubbing up. This is best done by using a firm, large-sized, male catheter and pressing behind the pubis as the tip of the catheter explores different regions of the organ.

In the primipara and in the parous woman where there is doubt about sufficient room, it should be routine to do a lateral or mediolateral episiotomy. A real objection to the median type here is that if it extends—which it may easily do in a difficult extraction—you have little control over it, and a complete tear may result.

If the cervix promises to offer obstruction, then more dilatation may be obtained by doing a careful manual manipulation. If this procedure does not give adequate room, then it may, though

rarely, be advisable to perform Dührsen's incisions.

The operations of episiotomy and cervicotomy should not be postponed until the trunk and shoulders are out. At this time it may be difficult to get proper exposure. As a consequence, vital structures of mother or child may be irreparably damaged.

It is necessary to emphasize the need of allowing the trunk to be born *slowly* so that the birth canal may get maximum dilatation. It is also vital that by the time the second shoulder is delivered the occiput be anterior. (If the chin is behind the symphysis, the head must be delivered as such by the Prague maneuver.) When, as is usual, the chin is posterior, the operator allows the body of the child to straddle one of his arms while the fingers of that hand are placed either in the mouth or over the face and forehead. The other hand grips the back of the neck. The operator then pulls outward, mainly toward the floor. One, two, or possibly three such tractions are necessary to flex the head and thus allow it to enter the upper birth canal. If the head is still not in the upper pelvis, then the operator removes the hand from the neck and uses it to exert pressure on the head behind the pubis in the direction of the birth canal. This, combined with body traction, is nearly always sufficient to bring the head into the pelvis. Sometimes, when descent is tardy, it is advisable and necessary for the assistant to perform the suprapubic pressure, but always with the specific instruction of the operator. Past experience of the operator will determine the degree of traction he may safely exert on the neck, and this same experience will help him to discover the oblique diameter which the head can best negotiate.

During these manipulations there is always the danger of damage to the neck, if the body is raised much above the horizontal, and it is vital to control the speed of descent and final delivery of the head. At the ischial spines there is a tendency for it to be suddenly released. At the very end it may "squirt out" with

such force as to endanger the rectal sphincter, or brain of the child

After the head is in the pelvis, and when the degree of traction and pressure necessary would seem to be more than can be safely applied, then forceps on the head are definitely indicated. In an emergency, almost any of the ordinary obstetric forceps will do. However, the Piper instrument is preferable. In using forceps to complete delivery, the operator should bear in mind that the main force of traction is due to flexion and then extension.

In a certain number of cases, even at the end of a well managed labor, there still remains a thick rim of cervix. If the lower uterine segment is found to be relatively normal, then one or both legs may be brought down and the further passage of the body through the birth canal used to give sufficient dilatation. Here, if the patient is under anesthesia, it is often a good plan to let her come out and 'push' with the pains for a while, thus allowing the cervix to dilate by the natural method.

When the lower uterine segment is definitely tonic, it is best—if at all possible—to postpone delivery for at least three or four hours until the segment, cervix, and patient have had a chance to relax under  $\frac{1}{100}$  gr of atropine and morphine with or without rectal ether.

If nature and the antispasmodic medication just referred to have failed, then the operator is faced with the greatest emergency procedure in obstetrics. With the patient under anesthesia, as noted above, the hand is inserted into the lower uterine segment. By gently sweeping the hand about, as this is alternately opened after partial closure more room is created.

As the assistant slowly pulls the trunk through the vagina, the operator, if possible, may reinsert the hand and so continue this 'extra' dilatation of lower segment and cervix until the shoulders are ready for delivery. During the delivery of the head, flexion and traction are best obtained when the lower hand is spread over the head. In this position

the hand can also be used to continue the method of dilatation just alluded to. While it is usually better for the operator himself to furnish the suprapubic pressure, he may require the help of the assistant. The maximum effect is obtained when the assistant stands on an ordinary operating room raft and makes available, if necessary, the combined force of his body weight and back.

In a prolonged and tedious extraction, the operator and assistant should trade places from time to time so that weary hands may be rested and revived. It is well to remember that fatigue produces awkwardness, inefficiency, and low morale, and some of these may court disaster.

In spite of the skill of the obstetricians there will still be a few cases where the operator is forced to conclude that the amount of force that can safely be employed will not bring the head into the upper pelvis. He may, and probably always should, try the forceps but he will often find that insertion of the second blade requires more force than his conscience will permit him to use. At this point, the sane operator will realize that even if the baby is not dead nothing can save it. Therefore he will sit down and rest, *for there is no rush*. Shortly, he can verify lethal exitus of the fetus and then prepare for perforation of the head.

Occasionally, we may still witness the horrible spectacle of an operator, in a state of panic, pulling desperately in an attempt to get out the aftercoming head. Such a method of procedure too often leaves in its wake, not only a dead baby, but also some of those unwelcome residuals—rupture of the bladder, complete tear, or separation of the symphysis. The well trained obstetrician is he whose speed is determined only by his skill. From the outset of his tussle with the aftercoming head, he will bear in mind that if he cannot save this baby he will send home from the hospital a sound mother who can subsequently bear a child to replace the one lost.

In conclusion, it should be hardly necessary to mention that preventive



medicine—adequate prenatal care and careful observation during labor—will reduce to a minimum the accidents to

which the aftercoming head may easily fall heir

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## Correspondence

### To the Editor

Altho I realize that letters to the Editor are seldom found in the *State Medical Journal*, I cannot refrain from sending you this brief comment concerning two articles that appeared in the May 1 issue. It was most fascinating to find in different parts of the JOURNAL two articles, dealing with the same subject but each presenting a completely different attitude or philosophy of therapy. On page 875 we find an article by Dr Liss entitled "Social and Asocial Accompaniments of Intense Hormone Medication." On page 956, in the section "Across the Desk" signed W S W, we find another article dealing with endocrinology, in which the author takes as a point of departure the views expressed in Dr Berman's newest book. This article is written with a most engaging and whimsical touch of humor.

In the first article, the philosophy of therapy is one in which the human being is regarded as a psychosomatic or psychobiological organism. In treating his somatic or biological defects one must bear in mind the social and psychological consequences of these defects, and also the social and psychological consequences of altering these defects. The individual, when receiving help in the somatic area, thru hormonal injections, may also need help so that he may integrate his accelerated biological development into a successful social and psychological adaptation. As Dr Liss says "Human constitution is increasingly accepted as being not alone a biologic structure or architecture, but a framework upon which emotional patterns and human practices depend. If we are sensitive to the accompaniments of biologic changes when hormone therapy is instituted we must likewise realize that conduct, social practices, and intellectual processes are concomitant phenomena. The organism accommodates its psychic patterns to physical variations either successfully or unsuccessfully. In the first instance, biologic maturation, comparatively speaking, keeps pace with emotional growth. In the second instance, the psyche may overcompensate or undercompensate. Bizarre conduct practices are the resultants, with overcompensating precocious or regressive infantile manifestations. Clinically, we meet thru this

intensive medication premature heterosexuality, homosexuality, and perverse infantile sexual practices."

In the second article, the philosophy is less that of a psychosomatic or psychobiological attitude and more that of a purely biological or somatic concept of the human being. The implication is that one need not worry about the social or psychological consequences when giving endocrine therapy, that these factors will take care of themselves, and always for the best, and in fact, that hormone therapy is the very best way of handling social and emotional maladjustments. There is no reference to any other type of procedure or to the possibility that we might help the individual in his social or emotional adjustment by other means. W S W is only interested in the sheer wizardry of "tinkering with the delicate endocrine glands." The time may soon come when we will know much more about human physiology and the relation between human physiology and human behavior. However, that time has not yet arrived, and to imply that it has is only likely to be misleading and to prevent our patients from getting the full advantage of what we do know at the present time.

W S W's concept of altering the behavior of a human being is to do it "by bringing harmony to their endocrine glands, as we tune the delicate strings of a violin." W S W forgets that a violin cannot play upon itself, which is exactly what a human being does. When the violin strings of the human being have been tuned, it is necessary that the psyche become accustomed to what is now a new instrument with strings of a different pitch so that it may produce a harmonious result. Thus, W S W's harmony of the hormones may be a little off key.

Hormonal injections may indeed bring about most gratifying somatic changes, but from the standpoint of the social and psychological effects it may be possible that a shot in the arm is a shot in the dark. I am reminded of that oft repeated couplet

"I shot an arrow into the air  
It fell to earth, I know not where"

Sincerely yours,

New York City  
May 27, 1939

GEORGE S GOLDMAN, M D.

# AGRANULOCYTOSIS DUE TO SULFANILAMIDE

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TO THE list of drugs reputedly producing agranulocytosis must be added sulfanilamide. Up to January, 1938, 7 cases have been reported in the literature attributing the agranulocytic state to the use of this new drug. Undoubtedly many more cases have been observed than the literature indicates. No attempt is made to belittle the efficacy of sulfanilamide, which is of such dramatic benefit in various streptococcal, pneumococcal, and gonorrheal infections, but it is important to publicize the toxic as well as the beneficial effects of this drug and to emphasize the necessity for cautious procedure in its use. For this reason we present another case of agranulocytosis following large doses of sulfanilamide.

## Report of a Case

A. P., a white female aged 66 was admitted to the Morrisania City Hospital on January 24, 1938 with a history of having slipped and fallen on her right side twelve hours previously. She complained of pain and tenderness in the right thigh and hip with inability to move her right leg. A fracture of the right femur was diagnosed and confirmed by x-ray with the fragments reported in good position. The patient was placed in Russell's traction and appeared fairly comfortable. Her previous history was essentially negative except that she had fractured her right wrist two years before. This had healed up uneventfully.

Her temperature on admission was 103 F and rose to 104 F on the second day. At this time some moist rales appeared in the base of the right lung and it was feared that the patient was developing pneumonia. On January 29, five days after admission, she was placed on 1 Gm (15 gr) of protylin three times daily. She continued to run an intermittent temperature, and on February 1 developed a follicular tonsillitis which cleared up in two days. Her course was uneventful up to February 18 when she developed some facial pallor and cyanosis and complained of soreness in her throat and

pain on swallowing. An oropharyngeal examination was negative. A blood count at the time was as follows: RBC 2,700,000; Hg 60 per cent; WBC 5,400; granulocytes 62 per cent and lymphocytes 38 per cent. As a result of her anemia she was given a blood transfusion of 250 cc. The protylin was discontinued two days later after she had received a total of 44 Gm (660 gr) over a period of twenty-one days. Three days after the protylin was stopped the following blood picture was noted: RBC 2,850,000; Hg 60 per cent; WBC 1,250; granulocytes none, and lymphocytes 100 per cent. She was given two ampules of pentnucleotide and another transfusion but died on the following day. A final white count taken several hours before she died showed 1,000 cells with 100 per cent lymphocytes. Other medication which she received while under sulfanilamide therapy included four doses of  $\frac{1}{4}$  gr of codeine and 10 gr of aspirin, ten doses of  $\frac{1}{4}$  gr of luminal and two doses of  $\frac{1}{4}$  gr of morphine sulphate.

## Autopsy

**General appearance**—The skin was pale and showed a slight icteric tint. Extensive ecchymosis was present in the left anterior cubital fossa and on the dorsum of the left hand. The larynx, base of tongue, and peritonsillar regions appeared normal.

**Chest**—Cross section of the sternum revealed a dark reddish brown marrow. The pleural cavities were clear. A few bronchopneumonic patches were present in the left apex and in the right base. A slight amount of exudate was present on the pleural surface of the right lower lobe. The heart was normal in size. The musculature was pale brown and firm. The valves appeared natural. The coronaries showed a few atheromatous plaques but were patent. The aorta showed a marked atheromatosis especially in the abdominal portion.

**Abdomen**—The viscera appeared in normal situ. The liver was of normal size and consistency and appeared somewhat pale. The spleen was also of normal size. On section the Malpighian bodies stood out faintly and the splenic pulp was brick red in color. The stomach showed a small superficial hemorrhagic erosion about  $\frac{1}{2}$  inch in diameter near the pylorus.

TABLE 1

Case Report	Total Amount of Sulfanilamide Received	Duration of Treatment	Appearance of Agranulocytosis	Final Outcome
Borst	40 Gm	40 days	38th day	died
Young	54 Gm	18 days	4 days later	died
Berg and Holtzman	38 Gm	27 days	27th day	died
Schwartz Garvin, and Koletsky	56 6 Gm	21 days	18th day	died
Jennings and Southwell-Sander	94 6 Gm	21 days	3 days later	recovered
Plumer	46 Gm	36 days	?	died
Model	84 Gm	18 days	?	died
Taub and Lefkowitz	44 Gm	21 days	3 days later	died

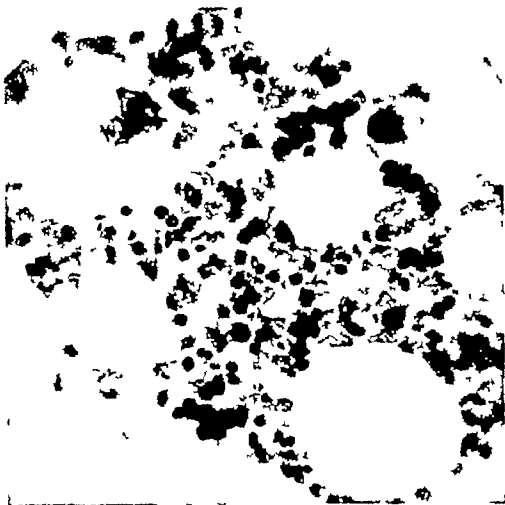


FIG 1 Bone marrow in agranulocytosis Showing normal cellularity with stem cell hyperplasia and absence of mature granulocytes

The intestines were essentially negative, no ulceration or erosion was noted throughout their entire length. The kidneys were normal in size and shape. The capsule of each stripped away easily, revealing a smooth surface. Normal relationship existed between the cortex and medulla. The pelvis and ureter were normal. All other viscera, including the urinary bladder, pelvic organs, adrenals, and pancreas, showed no evidence of pathology.

Histologic Examination

**Bone Marrow**—There was no apparent decrease in cellularity. The marrow spaces were filled with large numbers of deeply staining cells with pyknotic nuclei. These cells were quite large and it was difficult to determine whether they were myeloblasts or erythroblasts. A moderate number of small nucleated red blood cells were present, as well as some lymphocytes. Rarely was a segmented granulocyte noted, and only a very few cells with vesicular nuclei which might be classified as myelocytes. This microscopic picture was interpreted as a hyperplasia of the stem cells with absence of maturation into other forms.

**Lungs**—Inflammatory exudate was not present in those areas which were grossly diagnosed as patches of bronchopneumonia. The alveoli were filled with degenerated blood and macrophages containing pigment. The pleura was thickened and contained some anthracotic spots. The pulmonary vessels were engorged and the following differential was made on 60 white cells counted in a cross section of these vessels: granulocytes 2, lymphocytes 56, lymphoblasts 2.

Liver and kidney showed no unusual histology except that cross sections of vessels in these organs showed a similar differential as noted above.

Discussion

The constitutional cause of agranulocytosis is unknown. Fitz-Hugh<sup>6</sup> attributes it to an allergy or idiosyncrasy that produces a maturation arrest of the myeloid series of the bone marrow. This assumes that the toxic effect results from the administration of small quantities of drug. Amidopyrine and drugs of the benzamine group can produce a neutropenia in this manner. While it is conceivable that sulfanilamide may act similarly, all the case reports,<sup>1,2,3,4,5,7,8</sup> including our own, indicate that the agranulocytosis resulted only after heavy doses were given over a long period of time (three weeks or more). Bigler, Clifton, and Werner<sup>9</sup> reported on a series of 30 cases treated with sulfanilamide in which some tendency toward leukopenia was noted. None of their cases developed granulocytopenia. Their average dose was 14 Gm (210 gr) in seven days. One of their cases received a maximum dose of 26.6 Gm (400 gr) in ten days.

In the cases of fatal neutropenia the dosage varied from 38 Gm (570 gr) to 94.5 Gm (1417.5 gr) given over periods of eighteen to forty days. Thus

sulfanilamide must be classified as a potential marrow poison whose effect is cumulative. Erythropoiesis, as well as leukopoiesis, may be suppressed, although the degree of suppression may vary in the two functions.

Hematologically no warning may be given of the impending agranulocytosis. Even with the gradual fall in the total white count, the differential may retain



FIG 2 Cross section of a pulmonary artery in agranulocytosis. Differential count shows about 98 per cent lymphocytes.

its normal proportions. Then within a few hours the picture will suddenly change and the blood smear will only show lymphocytes. Unfortunately the agranulocytosis may not appear until after the therapy has been discontinued. In our own as well as 2 other cases<sup>4,5</sup> it appeared three days after the prontosil was stopped. The importance of repeated blood counts cannot be over emphasized and the medication should be cautiously given on the slightest indication of leukopenia.

As in all the cases of agranulocytosis the gross pathology varies with the severity and duration of the disease, and may range from extensive necrosis of the mucosal tissues to no findings at all. In our case the gross pathology was essentially negative. Only on microscopic examination did the bone marrow show an absence of mature granulocytes with a hyperplasia of the more immature

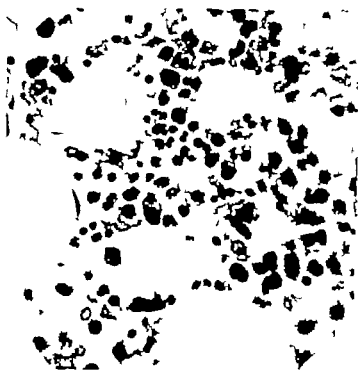


FIG 3 Normal bone marrow showing segmented cells and myeloid cells in various stages of maturation.

forms. Similar findings have been reported in other cases. Microscopic sections of the pulmonary and renal arteries also showed an absence of granulocytes in the blood content.

### Conclusion

A case of agranulocytosis is reported in which very large doses of sulfanilamide were given. From this and other cases reported it appears that there is a causal relationship between the agranulocytosis and the size of the dose.

In all cases where it may be necessary to give large doses of sulfanilamide, blood counts should be taken every forty-eight to seventy-two hours. If a tendency toward leukopenia is noted the medication should be stopped or given cautiously. Blood counts should be taken even after the medication has been discontinued.

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# CHRONIC MENINGOCOCCEMIA

## Report of a Case

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CHRONIC meningococchemia without meningitis is still a rare clinical disease. The diagnosis may be suspected clinically by the characteristics of the temperature record. The temperature is cyclic in type with daily peaks to about 104 F, and is associated with chills. It differs from the fever in malaria in that the daily peak does not occur at the same hour. Meningococchemia has been described by Salomon<sup>1</sup> in Germany as early as 1902. More recently, descriptions have appeared in the American literature with a detailed clinical and laboratory study by Appelbaum<sup>2</sup>. The following case covers the important phases of this unusual condition.

### Case Report

The patient, P Z, was a 53-year-old, married Italian shoemaker who was in excellent health until four months prior to his admission on January 16, 1937, to Division 1, Medical Service, Coney Island Hospital. At that time while on a fishing trip the patient fell into the water but was quickly pulled out. He changed clothes and felt perfectly well. The evening of the following day he suddenly experienced a chill, pains in the legs, and a sharp rise in fever. The chill lasted five minutes. The pains in his legs lasted one hour. The temperature rose to 104 F and was normal in the morning. From that time until admission to the hospital, he had nightly chills and fever (to about 104 F) and occasional pains in his legs. He also complained of weakness and a loss of 21 pounds in weight.

His past history was essentially negative and had no bearing upon his present condition. Venereal disease was denied.

On examination he did not appear acutely ill and was alert and cooperative. His pupils were equal and regular, and reacted to light and in accommodation. There were no conjunctival petechiae. Retinal examination showed early vascular sclerosis. His ears and nose were normal. His teeth showed several cavities and

evidence of poor hygiene. The mucosa was moist and of good color. The tongue was not coated or smooth, and the pharynx was clear. There were no glandular enlargements in the neck.

His chest was equal and regular in expansion bilaterally. The breath and voice sounds were normal. There were no râles. The point of maximum intensity of his heart beat was in the fifth intercostal space at the mid-clavicular line. The sounds were of good quality with a regular sinus rhythm and with a rate of 80 beats per minute. Murmurs were not heard at any time. His blood pressure was 140 systolic and 90 diastolic. His radial arteries were moderately sclerosed.

The abdomen was soft, not tender or rigid. The spleen and liver were not palpable at this time. Three days later his spleen became palpable.

Rectal examination revealed only a small, firm, uniform prostate gland. There was no tenderness and no masses.

All neurologic findings were normal. Many small, discrete, pink to red-colored maculopapular areas ranging in size from 0.25 cm to 0.75 cm in diameter were scattered over both legs. None of these appeared to be petechial. There was no edema of the extremities and no joint tenderness.

The general condition of the patient was thought to be quite good and remained so through his stay at the hospital.

Laboratory data. The blood Wassermann and Kahn tests were negative. Urine analysis was negative and remained so. The blood count was 3,980,000 red cells, with a hemoglobin of 78 per cent (Sahl). The total white cell count was 13,200 with 61 per cent segmented and 16 per cent nonsegmented polymorphonuclear cells, 18 per cent lymphocytes, 3 per cent monocytes, 2 per cent metamyelocytes, and 3 plus toxic granulation of all the cells.

The sedimentation index was plus 120 mm with a vertical curve. Blood glucose was 83 mg per 100 cc and blood urea was 11.4 mg per 100 cc.

The gonococcus complement fixation test was

reported as 1 plus. Prostatic smears were negative for gonococci. The Widal test agglutination for *Brucella abortus*, and smears for malarial parasites were all negative.

Spinal fluid study revealed a clear fluid under 120 mm of water pressure containing the following: reducing substance, 85 mg; chlorides, 730 mg; no white blood cells; no globulin; a trace of albumin; negative Wassermann and Kahn tests; no organisms on direct smear and no organisms on culture.

X-ray of the chest showed an old fibrous pleuritis on the left side. The spine showed slight hypertrophic changes in the lower dorsal spines and about the lumbar vertebral bodies. The kidneys, ureters, and bladder were reported as normal.

A blood culture taken on the day after admission was negative after twenty-four hours but showed at the end of five days a growth of organisms of the *Neisseria meningitidis* group. Blood cultures taken on the third and fourth days after admission were also positive after five days for the same type of gram-negative organism.

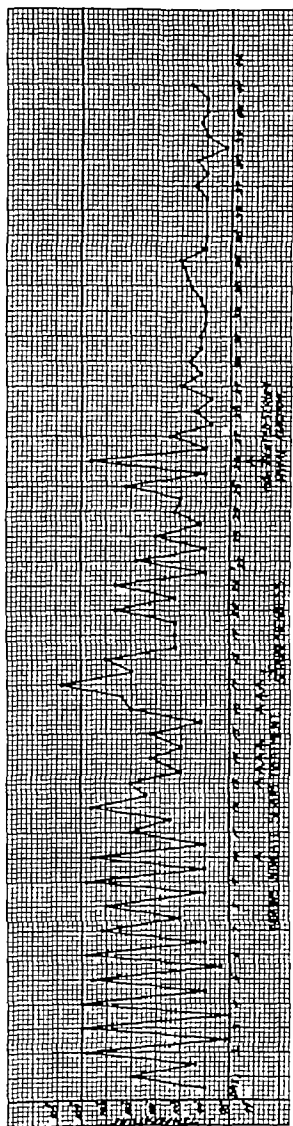
**Treatment.** On the tenth day after admission to the hospital, 25 cc of meningococcus antitoxin were given to the patient intravenously. No more of this substance was available at the time. Three days later 15 cc of antimeningococcus serum were given intravenously twice daily and continued for four days. Blood cultures taken during this four-day period were all negative. All subsequent blood cultures were negative.

Seven days after the meningococcus antitoxin was given, the patient developed a sudden generalized erythematous rash with pruritis and his temperature reached 104.8 F. With the onset of the serum sickness all specific treatment was stopped. The patient received in all 120 cc. of antimeningococcus serum in seven days.

### Comment

In the present report the important clinical features of the meningococcal blood stream infection were all present. Such complications as meningitis, endocarditis, nephritis, and epididymitis did not occur.

In the differential diagnosis of chronic meningococcemia are included malaria, undulant fever, typhoid fever, paratyphoid fever, typhus fever, rheumatic fever, miliary tuberculosis, erythema



nodosum, phlebitis migrans, secondary syphilis, gonorrheal septicemia, and sub-acute bacterial endocarditis

The course of the disease varies in the untreated case from several weeks to several months

The prognosis in most of the cases is very good

With the diagnosis established clinically and bacteriologically, the specific treatment that is available should be instituted promptly. The response to antimeningococcic serum is quite prompt as a rule. The question of dosage is not a settled matter and must vary with the response of the individual patient.

The primary focus of infection in this patient was not discovered. This is in conformity with the experience of other physicians.

A spinal tap was done and resulted in no harm to this patient. This procedure was used, though the physician was fully cognizant of the teaching of some clinicians that it is dangerous in cases with a blood stream infection. Other clinicians see no danger, and advocate its use, especially where any signs of meningeal irritation are present.

## Summary and Conclusion

A case of chronic meningococcemia of more than four months' duration presenting nightly chills and fever of sudden onset, migratory pains in the legs, and a maculopapular eruption was suspected clinically and proved bacteriologically.

Treatment consisted of 130 cc. of antimeningococcus serum administered intravenously over seven days.

The blood cultures became negative after the first injection and remained so.

No complications of the disease occurred.

The diagnosis may be suspected clinically by the septic type of temperature associated with chills and daily peaks, resembling the temperature behavior in malaria but differing from it by not occurring at the same time each day. The diagnosis cannot be made positively without appropriate laboratory studies.

The spinal fluid in this case was normal and a spinal tap did not result in the localization of the infection in the meninges.

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## IRON LUNG FIRST INVENTED IN FRANCE

According to *Franco-Anglo-American Press Relations*, the iron lung was first invented in France. The following quotation is of general interest:

"Although the recent impetus given the use of the iron lung did not come from France, it is nevertheless a fact that the first iron lung was made in Paris about 1870, when France was in the throes of the Franco-Prussian War, by Henri Collin, maker of medical instruments, on designs by Dr. Woillez, of the Hôpital de la Charité. The firm of Collin et Cie still exists in the Rue de l'École de Médecine in the Latin Quarter, where medical publishers and surgery instrument shops are gathered about the Faculty of Medicine of the University of Paris, and here may be seen a model of Dr. Woillez' iron lung, strikingly similar to the new Brinker Respirator.

"Dr. Jacques Le Mée of the American Hospital in Neuilly told the story of the invention in a radio talk which preceded a campaign to raise money for the purchase of iron lungs for France. He said that the iron lung invented by Dr. Woil-

lez was first used in Strasbourg in 1871. It was called a "spirophore" and was originally intended to provide artificial respiration for newly born babies. Like the modern American iron lung, it was shaped like a cylinder in which the body of the patient was enclosed with the head protruding, but with the air pump worked by hand. As its efficiency therefore depended on the physical effort of another person, it was impossible to use it for an indefinite period without interruption, as may now be done.

"For a long time the only iron lung in France was in the American Hospital in Neuilly, but many others are now in the country. As a result of Dr. Le Mée's campaign, two others were purchased for French hospitals, where they are being used specially for infantile paralysis cases in which respiration is difficult. Lord Nuffield, the noted British automobile manufacturer and philanthropist, gave one to the Queen Victoria Hospital at Mont Boron, Nice, and others have since been acquired elsewhere."

# GAUCHER'S DISEASE

## A Brief Review of the Disease with Report of a Case in a Male

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THE history of Gaucher's disease dates from 1882, when Ernest Gaucher first described it as a form of splenic anemia which he termed a primary idiopathic hypertrophy of the spleen.<sup>1,2</sup>

It is true that much has been added to the pathogenetic, clinical, pathological and biochemical aspect of the process nevertheless, the true etiology and the exact place which this entity holds in medical nosology has yet to be definitely defined.<sup>3,4</sup>

### Definition

This disease entity is one of the primary xanthomatoses belonging in a group which includes (1) Niemann—Pick's disease, (2) Hand—Schüller—Christian's disease, (3) The primary symptomless internal and external xanthomatoses<sup>5</sup>, and (4) Gaucher's disease.

The disease is now generally recognized as a nonhereditary, congenital, familial disease linked with a constitutional factor involving a disturbance in lipid metabolism.<sup>3,6</sup> In 1933 Anderson reported on the possible hereditary character. From his study of one family, it is seen that there is a possibility of transmissibility through an unaffected male to the daughters. The author points out, however, that the study is by no means conclusive. A more careful study of family histories in the future, as the disease becomes better known, may yet change our more accepted conception of its nonhereditary character.<sup>4</sup>

### Etiology

The true etiology of the process is unknown. Congenital development, a "toxic factor," and a disturbed lipid metabolism have all been proposed as favorable hypotheses. The last seems to be the most likely since Lieb and Ep-

stein demonstrated that the important constituent of the Gaucher cell is kerosin, which comes under the cerebroside in the subgroup of sphingogalactosides.<sup>3,4,13</sup>

### Morbid Anatomy

The pathology and pathogenesis since the beginning have been, and still remain, a matter of much controversy.<sup>2</sup> The primary pathologic feature is the large mono- and multinucleated, clear staining cells found primarily in the spleen, but also occurring in liver lymph nodes, and bone marrow. These cells measure on an average of 20 to 80  $\mu$  in diameter. The cytoplasm is clear, and a fine fibrillar network runs through it. The nucleus or nuclei are, for the most part, eccentrically placed, often at the very outer border of the cell.

In the spleen, the venous sinuses are lined by these cells yet the endothelial lining is not involved.<sup>2</sup> The origin of the Gaucher cells here is a much-debated point. The reticulum cells of the pulp are gradually transformed into Gaucher cells, resulting in the obliteration of the Malpighian corpuscles and the crowding of normal pulp cells into enveloping bands. In like manner, the parenchyma of the liver is destroyed by storage of the lipid substance in the histiocytes, which eventually are transformed into the typical, clear, ovoid cells. Such replacement has also been shown to take place in the adventitia and periaortitis of the blood vessels and in the lining cells of Glisson's capsule.

In the bone marrow and lymph nodes, similar transformations take place, varying from the presence of only a few large clear cells, to involvement where it is impossible to recognize the original marrow.<sup>2,4,13</sup>



### Symptoms and Physical Findings

The onset is insidious. The patient seldom complains of abdominal discomfort or of an abnormal mass. The enlarged spleen is usually discovered by some other person in undressing or picking up the child, often by the physician in his routine examination for some other complaint. Patients have been known to complain of a dragging pain on the left side, but when this is the case, examination usually reveals a spleen which extends into the pelvis.

A careful history may bring out previous epistaxis, hematemesis, melena, the frequent appearance of unusually large ecchymotic areas due to slight injury, and pain along the course of the long bones.

The general appearance of a well advanced case is striking. The barrel-shaped body with its greatest diameter at the level of the sixth, seventh, and eighth ribs, the emaciation of the face, arms, and legs, and the uniform yellowish-brown or other pigmentation are at once suggestive.

A hemorrhagic furunculosis is often seen, and small scars due to previous furuncles are not uncommon. Conjunctival pingueculae are frequently seen, but are not as common as the earlier literature reports.

The splenic enlargement is the important feature of Gaucher's disease. The spleen in advanced cases is tremendous in size. It may reach from the dome of the diaphragm well down into the pelvis and fill the entire left abdomen. It is smooth and regular in outline. The notch is readily palpable. Liver enlargement is a later feature. Its increase in size is likewise slow and progressive. In spite of the liver involvement, ascites and jaundice are conspicuous by their absence. This is of importance in ruling out Banti's syndrome. The superficial lymph nodes are only rarely involved and when found are pea-size, usually solitary, firm, and very freely movable. The thoracic and abdominal nodes in autopsied cases are always found to be enlarged.

The blood picture in the vast majority of cases is of considerable importance, yet

many cases reported in the literature are without this bit of information. A leukopenia is invariably present, an approximate average being 5,000 per cu mm. However, a few cases, evidently early, have been shown to have a leukocytosis. The differential count is normal. A hypochromic anemia is an exceptionally late development.

### Differential Diagnosis

The more common conditions requiring differentiation are the leukemias, Banti's syndrome, acholuric hemolytic jaundice, pernicious anemia, amyloidosis, Hodgkin's disease, and tuberculosis. The leukemias and pernicious anemia may be eliminated by use of the routine blood examination and sternal tap. The Congo red test for amyloidosis is of value in excluding this possibility. Acholuric hemolytic jaundice with an enlarged spleen invariably gives an increased icterus index with increased fragility of red blood cells. Fragility remains normal in Gaucher's disease, and in only 1 reported case has an elevated icterus index been present. Hodgkin's disease and Banti's syndrome must be ruled out by a combination of findings and symptoms. Hodgkin's disease is a possibility, but without involvement of the superficial or mediastinal nodes, the diagnosis is less probable. Tuberculosis may be ruled out by x-ray, the Mantoux test, and sputum examination. Of all possible diagnoses, Banti's syndrome is the most difficult of differentiation. The important points may be the presence of ascites, jaundice, pronounced and relatively early anemia, lack of pigmentation, and the feeling of general malaise—all of which are lacking in the Gaucher symptomatology.<sup>6</sup>

### Diagnosis

To make a clinical diagnosis in the early stages of the disease is generally considered impossible unless there is a definite familial history to arouse one's suspicions, and a biopsy is obtained on the patient under observation. The more constant findings in advanced cases are its familial incidence, pigmentation of

the skin, pingueculae, general bodily contour of the patient, presence of ecchymotic areas, a large spleen, persistent leukopenia with a normal hemoglobin and red blood cell count, bone changes by roentgenogram,<sup>9,10</sup> and the absence of jaundice and ascites. If Gaucher's disease is kept in mind when this group of symptoms and signs presents itself, its recognition and confirmation will become more frequent.

### Prognosis

The disease in itself is not a serious threat to life. Few cases are reported where death was due to the inevitable cachexia. The patient usually succumbs to an intercurrent infection, or as the result of an operative procedure. Early death from the disease per se is most uncommon. Patients evading intercurrent infections have been known to live well on into the sixth decade.

### Complications

The complications are generally inflammatory in character. Furunculosis, tuberculosis, pneumonia, and pleural and pericardial effusions are most frequently seen.

### Treatment

Splenectomy, x ray therapy, transfusions, and various iron tonics have all been given a trial without success. The disease progresses unalterably, regardless of treatment.<sup>9</sup>

### Case History

H. M., a single Hebrew male of Russian Hebrew parentage. He was 23 years of age. Admitted July 31, 1935.

A careful familial history revealed nothing of significance.

The patient's past personal history was negative except for the following:

In 1923 he was operated for a nasal obstruction. Abscess formation at the site of operation and in the right foot followed. Both required incision and drainage. Culture of the pus showed streptococci. Blood count at this time was R.B.C. 4,100,000 W.B.C. 8,600 polymorphonuclears 71 per cent, stab 20 per cent, lymphocytes 3 per cent. The patient recovered and except for head colds had been well up to the time of the present illness.

The patient's chief complaint on admission was cough, hemoptysis, and pain in the lower left chest. Two weeks previous to admission he developed a head cold with a cough and expectoration. Three days previous to admission he considered himself better, but the day before admission he felt weak, and the previous evening had coughed up some bloody sputum and noted pain in lower left chest.

Physical examination showed a poorly nourished male. He appeared fairly comfortable and not acutely ill. Temperature 102.8 F., pulse 120 and respirations 22. The positive finding of significance was a large emphysematous chest which merged with a large abdomen, the greatest circumference being at the level of the seventh and eighth ribs, giving the body the appearance of a large barrel. The chest was negative except for a high pitched percussion note at the left lateral base where one ordinarily obtains tympany. Inspection of the abdomen revealed a slight bulging of the left hypochondrium and lumbar areas. On palpation a huge spleen extending down to the umbilicus and filling the entire left upper quadrant, was made out. It was mobile, smooth in outline, firm in consistency, not tender, and the splenic notch was readily palpable. (The patient was unaware that this existed.) The liver edge was felt two fingers breadth below the costal margin, and was normal in character. There was no ascites. One small pea-sized lymph node was palpable in the left axilla. The patient's arms and legs were thin in comparison to his body. The general appearance was suggestive of that seen in a semimarasmic child. There were several ecchymotic areas over the tibiae. Over the back there were multiple scarred areas due to past furuncles. The skin had an ochre color which was augmented on exposed areas.

*Laboratory Work and Progress of Case.*—Blood count on admission: Hemoglobin 85 per cent, 12.5 Gm/100 cc. R.B.C. 4,000,000 W.B.C. 5,850 polymorphonuclears 62 per cent, mature 48 per cent, immature 14 per cent, lymphocytes 34 per cent, monocytes 4 per cent. No evidence of a blood dyscrasia. Platelets, 82,000, bleeding time one minute and forty five seconds. Clotting time two minutes and thirty seconds. Fragility of R.B.C. began at 0.40 per cent saline, complete in 0.425 per cent, icterus index 10.0 and 5.0 on two occasions.

On the third day following admission, the patient began expectorating greenish masses of rust-streaked sputum. Signs of a respiratory infection were still absent. X-ray showed hilar thickenings with finger-like strands projecting outward on the left side. Hodgkin's disease was



FIG 1 Positive print of X-ray films showing the lower ends of the femurs, demonstrating cortical thinning, rarefaction of the medullary portion at the lower ends, and Erlenmeyer flask shape of bones

considered, but thought unlikely. X-rays of the femurs showed cortical thinning, fusiform rarefaction of the medullary portion at the lower ends, and a change in the contour of the lower ends which has been described as being of an Erlenmeyer flask appearance<sup>3,4</sup> (Fig 1).

The patient ran a remittent temperature between 101 and 103 F with a persistent leukopenia, W B C 4,800, blood culture sterile, Widal negative. Stool was negative for blood. Nine days following admission, fine crepitant râles were heard for the first time in both chests, more marked in the left. At this time, the sputum became foul, and the amount expectorated from this time on ranged between 60 to 225 cc daily. Roentgenogram now showed a definite excavation, with a fluid level just superior to the left hilus with a surrounding pneumonitis, the posterior liver edge was reported down to the posterior iliac crest, and the spleen as filling the left side of the abdomen and the inferior tip extending almost to the level of the hip joint. Blood count at this time was: hemoglobin 75 per cent—11.5 Gm, R B C 3,800,000, W B C 5,100, polymorphonuclears 78 per cent, immature 16 per cent, mature 62 per cent, and lymphocytes 22 per cent. Blood chemistry: urea nitrogen 11.3, creatinine 0.5, uric acid 2.8, blood sugar 100, CO<sub>2</sub> comb power 61.4. Blood cholesterol, 100 mg/100 cc. Wassermann negative. The sputum was repeatedly negative for tubercle bacilli and pneumococci. Sputum culture showed *B. diphtheroides*, *Staphylococcus albus*, *M. catarrhalis*, and gram-negative bacilli of the influenza group. Smears showed a few spirilla, no pneumococci, and no elastic tissue. Further examination of sputum was negative for mycoses and positive for pneumococci. Typing gave no reactions for Types I, II, III, IV, V, VII, or XIV. The leukopenia continued. W B C 3,400, temperature 102.8 F, patient expectorating 200 cc of foul sputum daily. Patient began showing marked cachexia with secondary anemia. Hemoglobin 0.75 per cent, R B C 3,800,000, color index 0.98.

Sternal tap was negative for any bone marrow changes. Pathologic smear was negative for Gaucher's cells.

A Congo red colorimetric determination was made for amyloidosis. It was negative, thereby ruling out this possibility.

Bronchoscopic drainage of the abscess was attempted. Pus was seen coming from the left upper lobe bronchus. Surgical drainage was considered, but in view of widespread pneumonitis, judged inadvisable, as were other surgical procedures.

During the course of the disease, treatment consisted of supportive measures, K I and neosalvarsan for possible effect on the abscess, along with repeated small transfusions. Finally, pentanucleotides were tried in an effort to increase the leukocyte count. The immature count was raised, but the total count remained unaffected.

A splenic puncture was done without untoward results. The patient became rapidly weaker, marked anemia developed, and the pneumonitis spread with an increase in the size of the lung abscess. The last blood count showed hemoglobin 60 per cent—8.5 Gm/100 cc, R B C 3,000,000, W B C 2,600, polymorphonuclears 60 per cent, immature 40 per cent, mature 20 per cent, lymphocytes 38 per cent, monocytes 1 per cent, myelocytes 1 per cent, color index 1. Patient expired on the fifty-seventh day after admission. Autopsy could not be obtained. The final clinical diagnosis was (1) Gaucher's disease, and (2) Lung abscess with terminal bronchopneumonia.

The pathologic report of the splenic puncture was as follows. The specimen received was in formalin and consisted of a small fragment of grayish-brown tissue designated "biopsy of spleen." Microscopic examination reveals splenic tissue showing reticulum, the pulp contains many small nests of large polyhedral cells. The cytoplasm of this is fibrillar and pale-staining. The nuclei are small, hyperchromatic, and usually eccentrically situated. These cell nests

are seen compressing the sinusoids which contain a few red blood cells, and are lined by prominent endothelial cells. There are no Malpighian corpuscles seen in the section. Pathologic diagnosis: Gaucher's disease (Fig. 2).

### Conclusions

The conclusions resulting from this review of the literature and the case study lead the authors to believe that

1 In well advanced cases, the symptomatology and physical findings, linked with the laboratory work and x ray findings, place this entity among those diseases that may be diagnosed clinically with greater surety than heretofore conceded. However, it cannot be emphasized too strongly, that from a review of the literature one becomes aware that bedside diagnoses with one or two laboratory findings, sometimes none, have been used too freely in reporting cases of this entity. Many such reported cases are undoubtedly splenomegalies of another type. Pathologic section of the tissues involved has been neglected as a final proof, and in all cases this is the only sure foundation of authenticity.<sup>7,12</sup>

2 In well advanced cases, a persistent leukopenia even in the presence of a high temperature and a fulminating infection is a factor not present in other splenomegalies which might simulate Gaucher's disease.

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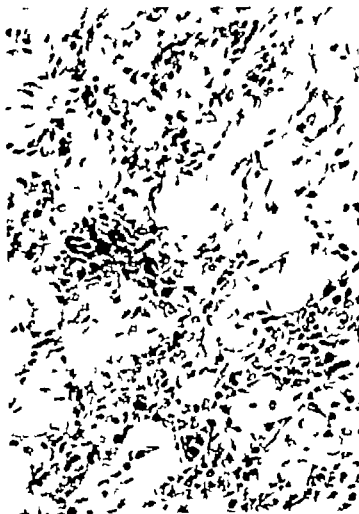


FIG. 2. Microphotograph made from section of splenic puncture shows the large typical foamy cells with eccentrically placed nuclei.

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### DO THEY DON'T GROW HAIR

An answer to the worries of many women appears in the correspondence column of the *J.A.M.A.* where a California doctor who uses the old fashioned yellow petrolatum on his face asks if it will grow hair. The reply covers all kinds of skin creams.

ANSWER.—No application to the skin that is known has the capacity either to increase or to retard the growth of hair. There is a commonly mistaken impression that certain creams are conducive to the growth of hair of some women's faces. This probably arises from the fact that

many women become more concerned with the creams they use about the time the skin begins to show signs of ageing. At this time, too most women have an increased growth of facial hair. They often conclude, therefore, that the creams on which they have focused their attention gave rise to the concomitant increase of facial hair. Neither petrolatum nor cold cream of themselves will cause growth of hair. In certain types of skin with acne the use of creams is contraindicated. It is probable that petrolatum also aggravates some cases of acne already established.

# HEMATOGENOUS TUBERCULOSIS

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UNTIL recent years it was generally accepted that pulmonary tuberculosis of miliary distribution and morphology was part of a larger picture of widespread disease in its late stage, involving many organs, of which the lung was one, and that fatal termination was the certain and not too remote outcome. However, increasing familiarity with this type of lesion, stimulated by greater use of the roentgen ray, occasionally brings to light a film of such appearance in a patient in whom the clinical course and symptomatology are quite contrary to what one might expect. Symptoms may be absent, or the illness may be one of a mild nature progressing to complete healing by absorption, fibrosis, or calcification. These cases are rarely seen in sanatoriums but are occasionally discovered among ambulatory patients in clinics or in the course of mass examinations such as we have an opportunity for conducting in the Health Department clinics.

Such cases of healing of miliary tuberculosis and complete clinical recovery have been reported by several authors during the past decade. It is interesting to note that Weigert in 1883 spoke of the healing of chronic miliary tuberculosis. Obviously these are not cases of the acute generalized miliary lesions with which we are more familiar, but rather are examples of a blood stream infection of a more limited extent, restricted for the most part to the lesser pulmonary circuit. Recognition of this entity has opened the door to a vast and fascinating aspect of the disease whose presence had been hinted at for many years as a result of fleeting glimpses, which occasional keen observers had been able to recognize from time to time, but whose complete solution has yet to be attained.

That tubercle bacilli inhabit the blood stream of the chronic tuberculous patient was shown by Villemain in 1869, when he succeeded in producing pulmonary tuberculosis in small animals by injecting the blood of tuberculous patients into them. During the past twenty years there has been extensive study and discussion of the subject by European investigators, but it is much more recent that the subject has been brought to our attention in this country by the independent studies of Pinner,<sup>1</sup> Miller,<sup>2</sup> and Reisner.<sup>3,4</sup>

The acute, fulminating, generalized miliary type of tuberculosis has been looked upon as the classic manifestation of the hematogenous infection because of its striking clinical picture and its consistent and convincing postmortem findings, showing showers of tubercles throughout the body. But it should be borne in mind that this is but one phase, and that the most severe, of a condition that also has a far more benign aspect. It must be recognized that tubercle bacilli in the blood stream may produce a subacute or chronic miliary tuberculosis of the lungs, as well as another group of chronic pulmonary lesions of less extensive distribution, all these without clinical evidence of infection in other organs. On the other hand, we also know that in addition to these pulmonary lesions, which are so readily recognized by x ray, foci may be produced simultaneously in other susceptible organs, as the bones, eyes, kidneys, skin, spleen, etc (Fig 1). Although activity may arise in these, they are usually of a latent or abortive character, and not recognized except at autopsy, when persistent search will invariably show them to accompany hematogenous pulmonary tuberculosis.

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### Pathogenesis

There are many opportunities for invasion of the blood stream in patients who have a tuberculous focus. As Miller<sup>2</sup> points out "Evidence is accumulating that any tuberculous lesion may under favorable conditions secrete tubercle bacilli into the blood stream." It is agreed that the acute generalized miliary disease is usually caused by rupture of a caseous pulmonary lesion into the circulation with dissemination of massive doses of bacteria throughout the body. It is quite conceivable, therefore, that smaller showers of bacilli may occasionally be discharged from less prolific sources, sometimes repeatedly over a period of time, and that they produce a type of pathology that may be abortive, benign, or of varying grades of activity.

The manner in which these disseminations take place is well described by Schreck,<sup>3</sup> who says "This invasion is most likely not a continuous one but rather an interrupted one, it can be said that there is no continuous dripping or raining of the bacilli into the circulation but the invasion may be compared to a hailstorm of tubercle bacilli lasting for a few hours and a more or less frequent recurrence thereof." An extreme example of this is the sudden development of tuberculous meningitis in a child in apparently good health.

The most common source of these bacilli is probably the caseous tracheobronchial lymph node, likewise, the primary parenchymal focus may contribute its share. Another potential source is any extrapulmonary focus that may be present. That this can occur is suggested by the occasional acute miliary tuberculosis arising after operation on a tuberculous kidney or bone. Recurrent discharges of bacteria from these various sites may find their way into a blood vessel or along the lymph channels into the thoracic duct which, through its relation to the venous circulation offers a direct route for transmission of bacilli to the right heart. Thence they are transmitted through the pulmonary artery into the lung, which acts as a natural filter although occas-



FIG 1 X ray of spleen showing numerous calcific miliary tubercles. Patient was in hospital because of Pott's abscess. No evidence of tuberculosis could be demonstrated in the lungs or other organs.

ional bacilli may continue into the greater circulation and create foci in extra pulmonary sites.

The importance of the primary focus as a frequent source of hematogenous dissemination is well emphasized by the fact that generalized forms of tuberculosis are considerably more frequent during infancy and early childhood than in later life. It is at this time that a primary complex usually presents itself in its most active phase, the second stage of generalization of Ranke.<sup>6</sup> It is also true that extrapulmonary lesions may develop without evidence of pulmonary dissemination. This is probably due to the discharge of bacilli directly into the arterial system, thus avoiding the pulmonary route, for it would be unlikely that they could pass through the pulmonary tree without being filtered out in appreciable numbers, producing corresponding pathologic changes.

### Pathology

As a result of this seeding, multiple tubercle formation is produced in the alveolar and interlobular septa, the

so-called interstitial spaces, but not in the air spaces. The chief distinguishing feature between this hematogenous tuberculosis and the more familiar bronchogenic type lies in this characteristic that the tubercles are laid down in the walls of the alveoli, the blood vessels, or the lymphatics, and do not enter the air spaces unless there is progression of the disease. In bronchogenic tuberculosis, on the other hand, pathology is produced directly in the air spaces.

Having arrived at the stage of seeding, the future course of the disease will present a wide variety of possibilities, depending upon several uncontrollable and ill-defined factors. The dosage of bacilli, together with their virulence, will, of course, decide to a great extent the distribution and the severity of the lesions. Other considerations that have an important bearing are the degree of general resistance, allergy, and tissue immunity, although the exact mechanism whereby these various factors contribute is by no means clear. It is known that the presence of bacilli in the circulation per se does not necessarily produce new areas of disease, for we have seen that in the caseating form of bronchogenic phthisis, numerous opportunities for bacteremia occur but relatively few extrapulmonary lesions appear, and it is a curious but well-established fact that very few terminate in meningitis or acute miliary tuberculosis. What it is that causes the bacilli to "take" in some cases and not in others is still a matter of conjecture. Varying susceptibility in different patients and in the same patients at different times, as well as varying susceptibility of different organs in the same patient suggest the question of fluctuating allergy, but the final explanation has yet to be offered.

The gross and roentgenologic appearance of the chronic forms of miliary tuberculosis may be identical with the acute fulminating type. They frequently differ, however, in that the latter is characterized by massive, more or less uniform, dissemination of miliary tubercles, whereas the protracted disseminated variety may present an uneven, nodular arrangement of

tubercles and irregular acino-nodose lesions representing a conglomeration of these tubercles.

In response to this invasion there soon develops a reaction, usually of an exudative nature, occasionally productive, or possibly a combination of the two. Because of the pneumonic nature of the exudative reaction about these discrete tubercles, there may be complete absorption, leaving no trace of their previous existence. These cases are quite dramatic and, until we acquired our present understanding of them, were somewhat confusing.

In the course of the hematogenous transmission of bacilli, the bulk of them are filtered out in the lungs, but in only a small percentage of cases do we find involvement of the entire pulmonary fields with production of this diffusely disseminated, chronic miliary tuberculosis. Several explanations may be offered for this phenomenon, none of which are subject to complete proof. It may be that the dosage is insufficient, possibly the allergic or tissue immunity response may be the controlling factor, or it is even possible that the condition may occur more frequently than we suppose but is not seen until a later stage when considerable absorption has taken place. At any rate, the more common manifestation of the chronic hematogenous lesion is seen in a distribution of a more limited degree, of which certain characteristics are outstanding. They are bilateral and symmetric with marked tendency to localize in the apices and upper lobes. With repeated invasions, further dissemination takes place in the lower portions of the lung, but the intensity of the lesions and the size of the nodules are always greater in the upper lobes.

The punched out cavity referred to by German authors as "lochkaverne"<sup>789</sup> is frequently associated with these lesions and is typified by its thin wall, its ability to expand rapidly or to completely disappear, and, in the uncomplicated hematogenous lesion, by the usual absence of involvement of the surrounding pulmonary tissue. This is in marked con-



FIG 2 CASE 2

trast to the more common form of tuberculosis in which cavitation is invariably associated with caseation and ulceration.

Pleural effusions, which in many instances show a tendency to repeated recurrence in the absence of pulmonary involvement, are likewise assumed to result from infection by the circulatory route. The frequency of this occurrence is quite consistent with the anatomic distribution of the blood vessels in the lungs and with their overabundant tributaries to the subpleural areas,<sup>10</sup> affording frequent opportunity for discharge of bacilli in that region. Of course this arrangement usually invites the development of subsequent pulmonary disease of the hematogenous variety.

In addition, one sees a frequent tendency to absorption of pulmonary pathology, progressing from below upward and in many instances leaving behind no apparent evidence of disease other than apical thickening or calcification. Where the reaction is of a more productive nature, as has been pointed out, absorption is accompanied by fibrosis, and one may see a residue of an extensive fibrotic network, the 'lymphangitis reticularis' of Scheuerman.<sup>7</sup>

An excellent example of this is seen in

*Case 1*—M. R., a robust female of 24 came to the clinic in 1934 because of recent cough and bloody expectoration on two occasions. Physical examination and sputum were negative and x-ray showed a *diffuse fine, miliary fibrosis* throughout both lungs, the late result of a previous hematogenous pulmonary tuberculosis which had healed by absorption and proliferative changes producing this fine network of fibrosis. Patient was afebrile and gave a history of pneumonia eight years previously followed by frequent unproductive cough until the time of her clinic visit.

Has been seen at infrequent intervals, present x-ray (four years later) shows no change but cough is much worse, dyspnea and emphysema have developed. Sputum still negative, blood findings and cardiac examination negative.

In some, healing takes place by resolution and calcification, the ultimate appearance being one of scattered calcific deposits, usually of maximum intensity and distribution in the upper areas.



FIG 3 CASE 2

*Case 2*—A. H., a 42-year-old male. Diffuse discrete calcific deposits scattered through both lungs, the end result of an old healed hematogenous pulmonary tuberculosis of miliary distribution with massive calcified mediastinal glands (Figs. 2 and 3). Patient had no complaint and gave no history of pulmonary disease. This was discovered during routine mass survey of applicants for relief.



The prognosis in chronic hematogenous tuberculosis is not always as favorable as one might be led to suppose from a cursory review of the healed cases. Tubercles in the interstitial spaces may caseate, soften, coalesce, and rupture into the air spaces, creating a condition similar to that of tuberculosis of bronchogenic origin. When this occurs, the secondary changes produced in the lung in the nature of caseation, cavitation, or fibrosis may be so extensive as to completely overshadow the picture and to obscure its original nature. What may have been a typical hematogenous dissemination may ultimately show no apparent evidence thereof, and the opportunities for spread will be quite similar to the status in the purely bronchogenic type. In fact, the opportunities are greater, for in addition to bronchial spread, the original focus of the hematogenous lesion is still present and ever-likely to break down further, discharging additional showers of bacilli into the lungs and other organs. So, in addition to the possibility of local progression, we may have the production of a chronic, low-grade extrapulmonary disease, usually in the renal, glandular, or skeletal systems, or there may be a violent reaction in the nature of an acute, generalized miliary tuberculosis. This is actually not an infrequent occurrence and patients who have shown few or no symptoms while harboring a benign infection may without warning develop a new and more severe fulminating superinfection.

### Clinical Aspects

The clinical picture of the different forms of chronic hematogenous tuberculosis may vary from complete absence of symptoms to the numerous expressions of acute and chronic pulmonary disease with which we are so familiar, but for the most part one is impressed by their comparatively benign character. The chronic miliary form is occasionally discovered quite by accident in a patient who may give no history of any pulmonary ailment. Or the onset may be ushered in with low-grade fever and moderate cough persisting for several weeks until the

initial inflammatory reaction has subsided, sometimes with complete absorption, in other instances showing resolution in the lower lobes with persistence of nodules and fibrosis in the upper portions, and in still other cases leaving a diffuse, fine fibrosis throughout both lungs. These patients may present themselves because of single or intermittent blood-streaked expectoration, and on viewing their x-rays we are amazed at the extent and nature of the pathology in a patient showing such little clinical evidence of disease (Case 1). Because of absence of involvement of the bronchioles, there may be no cough or expectoration. Positive sputum is rare. In those cases that have healed by fibrosis a marked loss of elasticity results, with a corresponding degree of emphysema, which may be the only presenting symptom.

Although during the original dissemination, tubercles may have lodged in the other organs, they may have been too few in number, or the resistive forces of the body may have been so potent as to restrain any destructive tendencies. At autopsy one may come upon organs studied with calcific tubercles (Fig 1, page 1671), mute evidence of such a process. These changes may likewise be seen in cases where the pulmonary changes are much less extensive.

In those patients in whom the lesions are limited to the upper parts of the lungs, as previously described, the clinical findings may be quite similar. The patient may present no symptoms of pulmonary disease and it may be discovered only because an x-ray is taken during the study of a person who has tuberculosis of some extrapulmonary organ. These latent pulmonary lesions may persist without change for some years, as in Cases 3 and 4. Sometimes in the course of a subsequent seeding with more extensive involvement, the reaction in the lungs may be more severe, and one is confronted with a subacute form of the disease, but even here it is remarkable that expectoration may be slight and sputum seldom positive. In Reissner's series, 2 patients among 30 showed bacilli in the sputum.

*Case 3*—F N a 25-year old female referred to the Jamaica Consultation Clinic for a chest examination by her private physician because she had a persistent sinus in the left buttock where an abscess had been incised four years previously and he suspected that it might be tuberculous. X-ray showed a typical distribution of hematogenous pulmonary tuberculosis (Fig 4) with nodular infiltration scattered through the upper two-thirds of both lungs bilateral symmetric, and of maximum intensity in the upper portions.

We learned from New York Hospital where the abscess had been opened that it was considered tuberculous and that x ray findings at that time were similar to ours four years later. She was diagnosed as chronic miliary tuberculosis. Patient is afebrile and has never had any respiratory complaint or history of pulmonary illness.

When coalescence takes place, with caseation and spilling of material into air spaces, producing changes similar to bronchogenic tuberculosis with the usual opportunities for spread, the symptomatology is more likely to approach the same pattern, but it has been observed repeatedly that even such cases are likely to run a more benign protracted course.

However it is well established that when the lesion under consideration has been produced by recurrent dissemination, the possibility of an overwhelming generalized infection is ever present and actually such cases frequently terminate with acute miliary tuberculosis and meningitis. Miller cites the work of Pagel<sup>6</sup> and Ruedel,<sup>11</sup> in which they showed that in such deaths they were invariably able to find other pathologic evidence of chronic hematogenous tuberculosis. More recently, Reisner found that among patients with extrapulmonary tuberculosis which is definitely hematogenous 20 per cent of deaths were of this nature. It is of some significance that patients presenting the more common forms of chronic pulmonary tuberculosis rarely develop miliary tuberculosis or meningitis.

The frequent association of these various lesions with extrapulmonary tuberculosis should impress the most skeptical with the logic of accepting as an entity the hematogenous explanation of such



FIG 4 CASE 3 (1938) F N Chronic hematogenous pulmonary tuberculosis asymptomatic associated with tuberculous abscess of buttocks no change in four years

forms of the disease. Furthermore, the detailed investigation of Reisner, who studied 240 cases of extrapulmonary tuberculosis and was able to demonstrate that among the pulmonary lesions found, two thirds were of the types described adds to an already well founded conviction.

The following cases illustrate certain phases of the evolution of hematogenous tuberculosis.

*Case 4*—H S a 17 year-old female. Admitted to the clinic in February 1934 with complaint of cough fever weakness and loss of 13 pounds in one year. T 101. X ray (Fig 5) showed mass of glands in right hilum and to a lesser degree on the left and patient was referred to Kings County Hospital with diagnosis of tuberculous mediastinal glands. She soon developed right axillary adenitis which on biopsy was shown to be tuberculous and she was transferred to Sea View Tuberculosis Hospital.

X-ray in July (Fig 6) showed diffuse nodular infiltration of hematogenous distribution throughout both lungs and hilum adenopathy. She was afebrile and did not appear ill but was kept in bed for seven months and discharged because of no activity. Sputum was positive once on

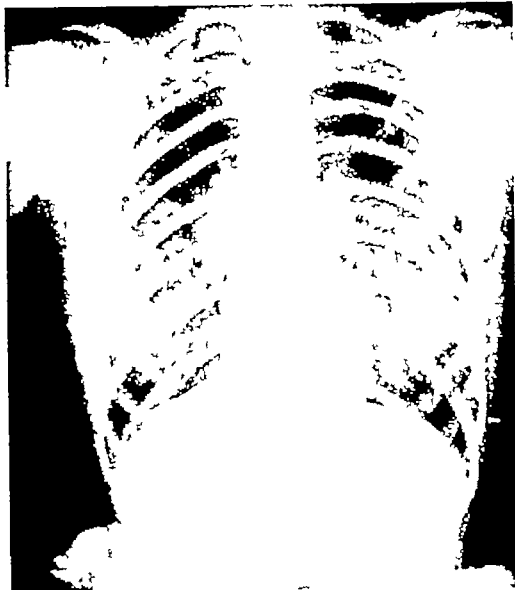


FIG 5, CASE 4 H S

admission but negative thereafter during the entire seven months

Two months later she returned to our clinic for checkup examination, no complaint at this time. X-ray showed an appreciable amount of absorption, the lesion appeared fine, punctate, and fibrotic, however, an acino-nodose bronchogenic lesion had developed in the left first space as a result of conglomeration and breaking down of tubercles. The following month cough and fever appeared and she was readmitted to Sea View, where she was again treated conservatively, there was occasional positive sputum and pneumothorax was induced. With partial collapse of the lung a large cavity was disclosed in the left second space, which was apparently the source of the positive sputum. The upper lobe was held out by an adhesion which was severed by the Jacobus operation and an excellent collapse was obtained. The sputum became negative soon thereafter and continued so during her stay in the hospital for the following ten months, when she left against advice and returned to the clinic where the pneumothorax has been continued for the past year. X-ray in March, 1938, shows excellent collapse on the left side with considerable absorption and healing on the right.

**Summary** A 17-year-old girl complaining of respiratory symptoms and fever showed large mediastinal glands and soon developed axillary glands, which on biopsy were shown to be tuberculous. A few months later there was a diffuse bilateral pulmonary spread with positive sputum but little clinical evidence of illness. Subsequently a bronchogenic lesion developed below

the left clavicle with breaking down of tissue and cavity formation, which was controlled by pneumothorax and pneumolysis. She has been receiving pneumothorax for two years and is apparently doing well.

**Case 5**—B S, colored girl of 10, was given routine examination as contact because father died of T B. Tuberculin test was positive and x-ray in September, 1935, showed fullness in superior mediastinal region. X-ray one year later (Fig 7) showed bilateral enlargement of tracheobronchial glands and persistence of prominent mediastinal shadow. In February, 1937, there was no change, but one year later, January, 1938, we see (Fig 8) a diffuse, fine parenchymal seeding throughout both lungs with discrete nodular lesions, a typical miliary distribution of hematogenous pulmonary tuberculosis. She was afebrile and asymptomatic but was referred to Sea View because of x-ray findings of chronic miliary tuberculosis. Her course there has been uneventful, the only findings of interest being an increase in sedimentation time, leukocytosis of 11,000 with 50 per cent lymphocytes.

### Summary

1 Pulmonary tuberculosis resulting from infection via the hematogenous route produces a clinical entity separate and distinct from the disease acquired by the usual bronchogenic route.

2 The lesions produced may be

- (a) Acute, generalized miliary tuberculosis, producing a fulminating fatal condition involving the lungs



FIG 6, CASE 4 H S



FIG 7 CASE 5 B.S



FIG 8 CASE 5 B.S

- (b) Chronic miliary tuberculosis in which the demonstrable lesion is limited to the lungs, although extrapulmonary foci especially in the bones, joints, and genitourinary tract, may occur without clinical evidence. These pulmonary lesions may be of varying extent, are usually bilateral and have a tendency to symmetry and localization in apices and upper lobes. Symptoms of pulmonary disease may be mild or absent.

3 Chronic hematogenous lesions are produced by single or repeated disseminations of bacilli into the circulation from various sources as caseating tracheobronchial nodes, the primary pulmonary focus, or extrapulmonary foci.

4 They may heal by complete absorption, diffuse, fine fibrosis or dense discrete calcific deposits. On the other hand, they may run a low grade chronic or subacute course or they may progress and break down, producing bronchogenic dissemination.

5 Foci are created simultaneously in extrapulmonary organs. They may be

of the abortive type or they may give rise to chronic low grade infection.

6 In chronic hematogenous tuberculosis acute fatal dissemination may occur at any time however, in the majority of cases patients run a mild protracted course and suffer less illness than those afflicted with bronchogenic infection.

I wish to express my appreciation to Sea View Hospital for making available to me some of the x rays which are illustrated here.

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# THE USE OF THE X-RAY IN THE DIAGNOSIS OF PLACENTA PRAEVIA

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VAGINAL examination, prior to cesarean section, increases the risk of operation. For this reason, cesarean section is done preferably without preliminary vaginal exploration. In placenta praevia, the danger from this source is augmented by the following factors:

1. The blood that accumulates in the vagina as a result of intermittent hemorrhage interferes with the bactericidal properties of the vaginal secretions, and thereby favors the growth of organisms which, ordinarily, possess little or no virulence.

2. The cervix in placenta praevia is soft and easily torn. In such circumstances, a gentle vaginal examination almost invariably causes minute lacerations in this structure. As a result, numerous avenues for the introduction of infectious bacteria are produced.

3. The proximity of the placental site predisposes it to, and increases the severity of, the infection.

Elimination of vaginal examination prior to cesarean section in placenta praevia cases is, therefore, most desirable. Because of the growing trend toward the use of cesarean section in the management of placenta praevia, anything that will enable us to make a diagnosis of this condition without resort to vaginal examination should be welcome.

The history of painless, causeless, recurring vaginal bleeding in the last trimester of pregnancy is so characteristic of placenta praevia that it often is possible to make the diagnosis from the history alone. We have seen cases with this characteristic history, however, in which the hemorrhage subsequently proved to

be due to partial premature separation of a normally implanted placenta or to a simple low implantation.

Absence of a boardlike uterus, likewise, may aid in differentiating placenta praevia from ablatio placentae. Again, however, in many cases of partial separation of the placenta, there is an absence of a ligneous uterus. Similarly, a placenta situated in the lower uterine segment may give rise to a marked uterine souffle in the vicinity of the symphysis pubis and may cause the presenting part to remain abnormally high. On the other hand, the finding of a high presenting part and the detection of a well-defined uterine souffle above the symphysis hardly justify the diagnosis of placenta praevia.

Roentgenologic methods have long been used as an aid to diagnosis in gynecology, but their use in obstetrics has, until quite recently, been limited. Menees, Miller, and Holly<sup>1</sup> in 1930 attempted to locate the placenta by means of amniography. By injecting strontium iodide directly through the anterior abdominal wall into the amniotic sac, the amniotic fluid was made relatively opaque, and the placenta could then be visualized as a filling defect when it was shown in profile. This necessitated the taking of posteroanterior, lateral, and, occasionally, oblique views. In the majority of the 21 cases which they reported, the placenta was visualized. In their hands, no injurious effects on the mother or fetus were noted except in 1 case of placenta praevia at six months, in which the fetus was expelled thirty hours after the injection, probably because the placenta had been perforated by the needle.

Kerr and Mackey,<sup>2</sup> in 1933, using the same technic in 10 cases, noted that 3 of the fetuses died and were expelled prematurely. As a result, they gave up the use of strontium iodide and, in its place, substituted uroselectan-B, which they found to be neither toxic nor irritating. The latter material was used in 10 cases all of which fell into labor within five days after injection. Its use, accordingly, was thereafter restricted to pregnancies of thirty five or more weeks' duration.

Burke,<sup>3</sup> in 1935, repeating the work of Kerr and Mackey, visualized the placenta in 9 out of 10 cases. He found the method so successful, however, in inducing labor that he used it in 27 instances for that purpose alone, and all of these cases fell into labor within seventy two hours, the average time being twenty three hours and thirty five minutes. From these reports, it would seem that amniography carries too high a fetal mortality when strontium iodide is used, and too high an incidence of induction of labor when uroselectan-B is substituted. Its employment as an aid in the diagnosis of placenta praevia, therefore, is open to question.

Snow and Powell,<sup>4</sup> in 1934, were able to visualize the placenta by means of the x ray without the use of an opaque media, and they found that the placenta was always on the side of the fetal small parts. Although no cases of placenta praevia came under their observation they believe that the method should be helpful in the diagnosis of this condition.

In 1934, Ude, Weum, and Urner<sup>5</sup> reported the x ray findings in a bleeding case who was subjected to roentgenologic study for the purpose of ruling out any abnormality of the fetus prior to cesarean section. They noticed an unusual amount of tissue between the bladder and the fetal head, and they interpreted this finding as due to a central placenta praevia. Their diagnosis was confirmed at the time of operation. It then occurred to them that the use of an opaque media in the bladder might aid in the diagnosis of placenta praevia, and in their next 2 cases this method was found to be successful. In 1935 the same authors<sup>6</sup> reported



FIG 1 A negative cystogram. The bladder shadow conforms to that of the head with an intervening space of less than 1 cm. and indicates an absence of placenta praevia.

the result of its use in 35 instances of last trimester bleeding. Fourteen of these had placenta praevia, and all were diagnosed correctly. Friedman and MacDonald,<sup>7</sup> Hall, Currin, and Lynch,<sup>8</sup> and McIver<sup>10</sup> likewise found the method to be successful in a limited number of cases. McDowell,<sup>11</sup> on the other hand, reported 2 incorrect diagnoses in 9 cases examined by this method.

Since the lower uterine segment and the two peritoneal layers of the bladder reflection are the only structures that intervene between the urinary bladder and the fetal head, Ude and his co-workers believe that a cystogram in the presence of placenta praevia will show an abnormally wide space between the head and the bladder. According to their technic, a catheter is inserted into the bladder and, after withdrawing the urine, 40 cc. of a 12½ per cent solution of sodium iodide are injected. The catheter is then removed, and an anteroposterior plate is taken, with the tube centered over the



FIG 2 A positive cystogram Central placenta praevia The bladder shadow conforms to that of the head but is widely separated from it and indicates the presence of central placenta praevia

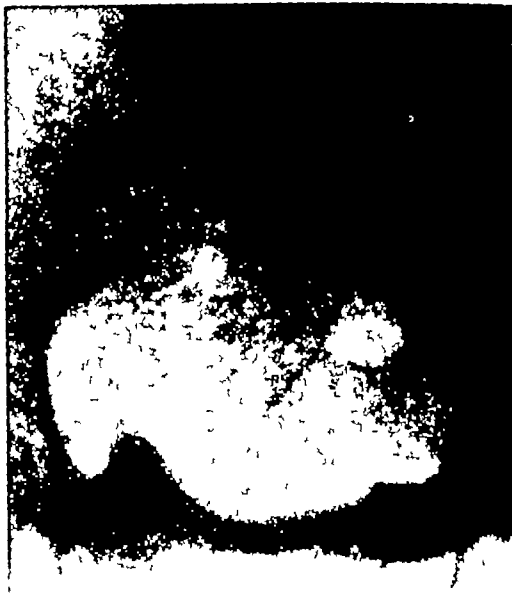


FIG 3 A positive cystogram Partial placenta praevia The bladder and head shadows are widely separated but, on one side, the side of the placenta, the separation is much wider and indicates the presence of partial placenta praevia

mid or lower abdomen In their experience, the normal bladder shadow conforms to that of the head with an intervening space of approximately 1 cm (Fig 1) In the presence of central placenta praevia, a much wider separation of the head and bladder shadows is observed (Fig 2) On the other hand, in partial placenta praevia, the separation on one side, the side of the placenta, is very much wider (Fig 3) They believe that by means of their technic placenta praevia can be diagnosed or ruled out with a high degree of accuracy in all cases excepting those in which there is a breech or transverse presentation The following cases are characteristic of those in which the cystogram was of great value

### Case Reports

*Case 1*—C H, para VI, at term, was admitted with a history of rather profuse bleeding, accompanied by slight discomfort The history and abdominal findings were so typical of placenta praevia that cesarean section, without vaginal examination, was seriously considered

The cystogram (Fig 1) was negative, however, and, as a result, vaginal examination was done No placental tissue could be felt The membranes were ruptured artificially, and the patient subsequently delivered spontaneously The clinical course of the labor and examination of the placenta and membranes indicated that the bleeding had been from a partial separation of a normally implanted placenta

*Case 2*—M M, a nullipara, at term, was admitted to the hospital because she thought her membranes had ruptured Shortly after admission, painless bleeding estimated to be 200 cc occurred A cystogram was taken (Fig 2), and a diagnosis of central placenta praevia was made This diagnosis was confirmed by cesarean section

*Case 3*—G A, para IV, at eight and one-half months, was admitted with a history of painless, causeless hemorrhage The cystogram (Fig 3) showed partial placenta praevia Vaginal examination confirmed the diagnosis Treatment consisted of the introduction of a hydrostatic bag followed by Braxton Hicks's version Vaginal examination, the course of labor, and a study of the placenta confirmed the x-ray diagnosis



FIG 4 A negative cystogram Displacement of the bladder toward the right, probably from right-sided torsion of the uterus is deceptive. The head and bladder however are not sufficiently separated to indicate placenta praevia.



FIG 5 A negative cystogram Wide separation of the head and bladder shadows This does not indicate central placenta praevia because the bladder shadow does not conform to that of the head

On the obstetric and gynecologic services of the Long Island College Hospital and the Long Island College Division of the Kings County Hospital, we have made roentgenologic examinations in 100 cases admitted with bleeding in the last trimester of pregnancy. Sixteen of these had either breech or transverse presentations and, accordingly, were of no value in this study. Of the remaining 84 in which the technic of Ude and his associates was applicable, 70, or 90.4 per cent, were correctly diagnosed, and in 8, or 9.6 per cent, the diagnosis was incorrect. Three of the erroneous diagnoses, however, were due to faulty interpretations of the films. These cases are summarized as follows:

#### Case Reports

*Case 1*—M. R. para V was admitted at eight months with a history of having had two painless gushes of blood estimated at a cupful each one a week before and one just prior to admission. The cystogram (Fig 4) suggested the

presence of placenta praevia. Vaginal examination however failed to corroborate this diagnosis and the patient subsequently delivered without difficulty. Examination of the placenta showed evidence of partial premature separation. Our interpretation of this plate was erroneous because we failed to consider the distortion produced by a right-sided torsion of the uterus.

*Case 2*—M. W. nullipara, seven months pregnant was admitted with a history of painless bleeding. The cystogram (Fig 5) was suggestive of central placenta praevia. On vaginal examination however no placenta could be felt and delivery ten weeks later was uneventful. In this instance the faulty interpretation of the cystogram was due to our failure to observe that the bladder shadow did not conform with the shape of the head, a requisite originally mentioned by Ude and his associates and subsequently pointed out by Hall.<sup>9</sup>

*Case 3*—H. M. para II near term was admitted for elective cesarean section. During the course of pelvic x-ray study a cystogram (Fig 6) was made and a diagnosis of left lateral placenta praevia was suggested. Subsequently, a lateral plate showed this suggestion to be er-





FIG 6 A doubtful cystogram Although the bladder shadow is more widely separated from the head on one side, the bladder and head are too close together to justify a positive diagnosis A lateral plate revealed findings that were negative for placenta praevia

roneous When the cesarean section was done, the placenta was found to be normally implanted

These experiences show that great care must be used in interpreting the cystograms Whenever the bladder shadow is widely separated from the fetal head, a diagnosis of central placenta praevia should not be made unless the bladder shadow conforms to that of the head One of our associates has suggested that pressure on the fundus of the uterus might force the head against the placenta and thus assure correct findings, if placenta praevia is present Litzenberg<sup>12</sup> also recommended that an enema be given prior to the taking of a cystogram, in order that the head, placenta, and bladder relationship might be truly represented Whenever the bladder is abnormally placed, as it was in Case 1 (Fig 4), the possibility of this displacement being due to torsion of the uterus should be considered Such a cystogram will then be properly interpreted as nega-

tive for placenta praevia In all doubtfully positive cystograms, a lateral or oblique plate may help to show the true state of affairs, as was true in the case represented by Fig 6 Failure to recognize these possibilities of error led us to draw erroneous conclusions concerning this method in a previous communication<sup>13</sup> More careful study of our films, together with subsequent material, have caused us to revise our opinion and to regard the method more favorably

Had the films been accurately interpreted, a correct diagnosis would have been made in 79, or 94 per cent, of the 84 cases A total of 21 cystograms indicated the presence of placenta praevia, and, in each instance, subsequent events proved the accuracy of these positive findings In our material, accordingly, the positive cystograms were 100 per cent correct On the other hand, not all of the 63 negative observations were free from error Five, or 8 per cent, of them definitely had placenta praevia The value of this method, as shown by our study, accordingly, is comparable with that of the Wassermann test in syphilis complicating pregnancy When the findings are positive, a positive diagnosis may be made, but an incidence of 8 per cent of false negative observations precludes the use of this method as a means of ruling out placenta praevia in suspicious cases of last trimester hemorrhage Whenever the cystogram is negative, therefore, some other means of diagnosis should be employed In such circumstances, stereoscopic anteroposterior and lateral films may be helpful, if the placenta cannot be located in that manner, vaginal examination is indicated

### Summary

1 One hundred cases of last trimester hemorrhage were subjected to roentgen-ray study by the method of Ude, Weum, and Urner

2 Sixteen of these were unsatisfactory, because the presentations were either breech or transverse

3 The method was accurate in 79, or

94 per cent, of the remaining 84 suitable cases

4 Twenty-one positive cystograms were obtained, and all of them had placenta praevia. Positive findings, accordingly, were 100 per cent accurate

5 Five, or 8 per cent, of the negative cystogram cases were proved to have had placenta praevia

6 Like the Wassermann test in syphilis complicating pregnancy, definitely positive findings probably are accurate, but negative ones do not rule out the possibility of placenta praevia.

We wish to express our appreciation to Drs A. L. L. Bell and Bernard Ehrenpreis, roentgenologists, for their kind assistance in the study of these cases

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### Discussion

Dr Stanley C. Hall, *Brooklyn New York*—In a series of cases studied at the St. Mary's Hospital and the Methodist Episcopal Hospital in Brooklyn, 48 were bleeding cases 9 of which were placenta praevia correctly diagnosed by the cystogram.

There were three errors—3 cases diagnosed as placenta praevia by cystogram which were proved not to be so at delivery. In these three errors there was a large space between the presenting part and the bladder. Also the cavity in the bladder corresponded to the convexity of the presenting part.

The first error was one of ablatio placentae, which was diagnosed as such clinically before the cystogram was taken. The second error was a bleeding case of seven months gestation

diagnosed as central placenta praevia by cystogram. The patient remained in the hospital until the eighth month at which time a vaginal examination showed definitely that there was no placenta praevia present. The patient was allowed to go home. She returned at term to be delivered without any evidence of placenta praevia. The third error was in a bleeding case of eight months in which the cystogram showed a partial placenta praevia. She delivered normally the same day of cystogram with no evidence of placenta praevia.

These three errors with others reported cause me to feel that even with a positive cystogram a cesarean section should not be done without a previous, gentle vaginal examination.

In our series of bleeding cases, there were none that were proved to be placenta praevia when there was no space between presenting part and bladder. This is at variance with the findings of Dr Beck and Dr Light. They report 5 or 8 per cent of their cases to have had placenta praevia when the cystogram was negative. I cannot see how it is possible to have a placenta praevia present with no space between the presenting part and bladder. I would like to know how many of these 5 cases were marginal placenta praevia and how many had some space, but perhaps not enough to definitely make a diagnosis of placenta praevia. The general opinion is that cystograms are only valuable in central and partial placenta praevia.

My feeling, from our findings has been that if there were a definite space of 2 cm. or more between presenting part and bladder we might or might not, be dealing with a placenta praevia—and that a careful vaginal examination should be done before cesarean section is contemplated.

We all know that when doing a vaginal examination, it is not always easy to make a diagnosis of the type of placenta praevia without causing a severe hemorrhage. However if we have a positive cystogram and discover suggestive findings from a gentle vaginal examination, then our diagnosis is clearer and we have not subjected the mother to additional hemorrhage.

It is quite evident that a much larger series of cases should be studied before definite conclusions can be drawn. The fact that there are so few cases of placenta praevia in any one hospital during a year makes that problem much more difficult. I am sure that additional facts can be elicited from stereoscopic and lateral plates as suggested by Dr Beck and Dr Light.

I have enjoyed the paper by Dr Beck and Dr Light and feel that they have contributed much to the knowledge of x ray in placenta praevia.

Dr Milton A. Carvalho, *Jersey City, New Jersey*—After listening to the excellent paper of Dr Beck, I wonder if any of the cases of placenta praevia which were not diagnosed by the cystogram showed a placenta praevia implanted on the posterior wall of the uterus? In a paper read at the Section on Obstetrics of the New York Academy of Medicine, November 23, 1937, Dr John A. McGearry and I reported such a case in a series of 19. The anteroposterior view of the cystogram was entirely negative, and yet on vaginal examination there was a partial placenta praevia implanted on the posterior wall. Dr Howard Moley, in discussing the paper, mentioned that that was the first time in the limited literature on the subject that it had been pointed out that the cystogram will not show such an implantation, unless enough of the placenta overlies the undilated cervix to interpose between the fetal head and the bladder.

About that same time, there appeared in *Clinical Obstetrics*, Vol 39, page 373, an article by M. Centroni emphasizing the same point. This paper has but recently been called to my attention by Dr Moley.

In comparison with Dr Beck's figures on cor-

rectness of diagnosis, in our series of 59 cases of third trimester bleeding with vertex presentations, the absence of placenta praevia was correctly diagnosed in 93 per cent. The presence of placenta praevia was correctly diagnosed in 62.5 per cent. In the entire series, a correct diagnosis was made in 84.7 per cent of cases. The diagnosis was equivocal in 8 breech presentations, 2 of which had placenta praevia.

Our figures coincide closely with those of Dr Beck except in the correct diagnosis of placenta praevia when present. However, each of the 6 cases not correctly diagnosed had a posterior implantation at operation or delivery. Dr Henry Olsen, of Minneapolis, told me of 2 cases he had in his private practice, and Dr Douglas of the New York Lying-In Hospital called my attention to 1 such case at that institution recently.

At the Margaret Hague Maternity Hospital, we consider the cystogram an aid in diagnosis, but we emphasize that it must be considered with the history and clinical findings, as does Dr Beck in his clinic. Regarding the diagnosis of a placenta praevia on the posterior wall of the uterus, by x-ray, we are working on a method which may prove useful.

#### NEW LEADER OF GERMAN PHYSICIANS

As previously reported, Dr Wagner, leader of the physicians of the Reich, recently died. Dr Leonardo Conti has been appointed as his successor with the title "health leader of the Reich." The Berlin correspondent of the *J.A.M.A.* tells us that Dr Conti was born in 1900 in Lugano (Italian section of Switzerland) and bears an Italian first name and family name. His mother was well known in Berlin as a midwife and now plays a leading part in directing the midwives. Dr Conti was cofounder and secretary of the first antisemitic club organized in Berlin in postwar days. In 1923 he became an S.A. follower. In 1927 he joined national socialism and became the first S.A. physician in Berlin. Later on he was leader of the Berlin district of

the national socialist medical association. In the upheaval of 1933 he was assigned to the Ministry of the Interior. He engaged in lecturing, for example, on the prohibition of vivisection (he was in favor of rendering scientific experiments on animals more difficult), on the position of the physician in the third Reich, and so on. Since 1936 he has been in charge of the health department of the city of Berlin. He now takes Dr Wagner's place. The change of title is to indicate the change in the status of the physician in the new régime. The most important task assigned to the physician by the political party in control is not to cure illnesses and diseases but to "serve by promoting health and preventing disease."

#### MEDICINE ON FOUR LEGS

As long as the lizards hold out, the people of the Philippine Islands can hope for relief from asthma and boils, leprosy, syphilis, scrofula, beriberi, eye diseases, and the loss of vital powers. That is, they can hope. An article in the *Journal of the Philippine Islands Medical Assn.* describes the various lizards there so that anyone can

recognize them, tells how to prepare them, and says what they are reported to be good for. Sometimes they are dried and ground to powder, sometimes an oil is extracted, sometimes they are roasted and eaten. Hindus, Mohammedans, Chinese, Egyptians, and Filipinos use them for medicine, and they are on sale in the bazaars.

# CANCER OF THE CARDIA, ROENTGENOGRAPHICALLY CONSIDERED

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SO MUCH interest has been displayed in a recent article<sup>1</sup> by one of the authors on the early roentgenographic diagnosis of cancer of the cardia, that it was thought advisable to report further on our more recent investigation of this important subject.

Ewing quotes from the United States Census of 1912 that in 46,534 deaths from malignancy, 39.75 per cent of the cases were due to gastric cancer.<sup>1</sup> It is estimated that of this number at least 10 per cent involve the cardia. Welch's table of 1,300 cases of cancer of the stomach exhibits a distribution of pylorus 60 per cent and cardia 8 per cent. Mathiew, in 234 cases, locates 56 per cent at the pylorus and 12 per cent at the cardia.

In a few cases of malignancy of the cardia, the lesion is easy to recognize, but many evade a positive diagnosis because the possibility is not given proper consideration. No real search is conducted and the disease may not be recognized until a postmortem examination demonstrates it. The posterior or even the anterior wall may be the site of involvement, which makes its recognition all the more difficult. Lateral roentgenograms are a necessity in demonstrating a lesion in this location. There may not be a definite dysphagia or other sign of localization present.

If these cases are to be diagnosed so that favorable treatment may be instituted and life prolonged it is necessary to establish the factors by which the early lesion may be detected. The diagnosis of cancer involving the stomach is almost entirely based on its roentgen aspects (Fig 1). This is particularly the case when search is made for early involvement. The gastroscope and gastrophotor are valuable

aids now coming into prominence but their sphere of usefulness is limited at the present time, due to lack of knowledge of the normal, and lack of competent investigators. This field, however, is becoming more and more important and reliable. The findings should always be combined with the results of the roentgen examination.

Cancer arising in the stomach is usually adenocarcinoma, but as it extends, it may involve the lower end of the esophagus by contiguity (Fig 2). It is when this occurs that dysphagia is noted. If the cancer arises near the orifice and the growth involves the esophagus at an early stage, the diagnosis may be positive when the gross tumor is small. If the cancer extends through the fundus or toward the pylorus, it is obvious that it may attain larger size before hemorrhage, anemia, or weakness suggest an involvement of the stomach and permit any diagnosis being made.

The only sign of early cancer is weakness, tiredness, and loss of strength. As this is a universal complaint, it may not be given the attention it deserves. It should be regarded as a danger signal of the first rank when it occurs in a patient over fifty years, particularly when of recognizable onset and when persistent enough to send the patient to the doctor. If the physician gives a second thought to the matter he will not prescribe a tonic. Instead the conscientious and scientific doctor will promptly advise search, on the remote possibility that he is dealing with malignant disease. Until the general practitioner insists upon treating his patients in this manner, *there will be no diagnosis of early cancer*.

A word as to the competency of the



FIG 1 L S, female, aged 58 years Distress after eating for last month No dysphagia Lost 3 pounds in two weeks X-ray findings Esophageal obstruction at cardia with dilatation above Filling defect in upper third of stomach

roentgenologist There is often failure to discriminate, because possession of the apparatus is considered equivalent to the knowledge of interpretation

Early cancer is difficult of apprehension, just as diagnosis of any disease in its incipency requires more skill than when the lesion is so large that anyone can recognize it

A small lesion with stiffness of a localized segment of the stomach may require utmost vigilance, meticulous care, and attention to detail to be capable of demonstration Six months later, when signs of obstruction are dominant, anyone can make the same diagnosis In the meantime, the patient's life may be sacrificed If cure is to be more than a remote possibility, diligent search must be expended to locate the early case.

Roentgen evidence of a lesion involving the cardia may be summarized under two headings

(A) When the cardia is involved either locally or by extension from below, infiltration of the cardia gives these roentgen findings (Fig 3)

- 1 A bizarre mucosal pattern, with loss of the normal regularity,
- 2 The lumen in the upper stomach is somewhat constricted or narrowed,
- 3 Roughening and irregularity along the lesser curvature may be noted,
- 4 Stiffening of the wall and constancy of defective filling,
- 5 Lack of mobility, the area is "frozen",
- 6 Increased motility of the meal,
- 7 Tumor visible through gas bubble,

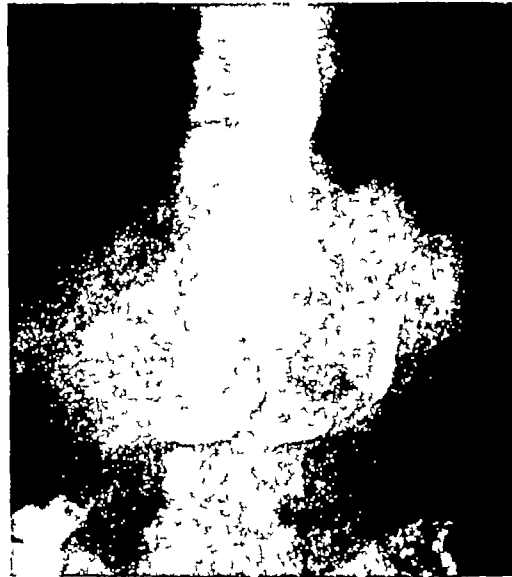


FIG 2 H H, male, aged 71 years Difficulty in swallowing past ten months Lost 35 pounds X-ray findings Narrowing, canalization, and fixation at the cardia Esophagus considerably dilated above with deformity of rugae of the fundus in close proximity to the cardia

- 8 Increased distance between fundus and diaphragm (Dr Holmes's sign)
- (B) When the lower esophagus is also involved (Fig 2) there is in addition
- 1 Retention of barium in the lower esophagus,
  - 2 Dilatation of the lower esophagus above the stricture,
  - 3 Barium passes through the esophageal orifice in a continuous stream,
  - 4 Lower esophagus is also frozen in position and lacks normal movements,
  - 5 Canalization of the lower esophagus,

6 Forking of barium stream over the mass,

7 Esophageal antiperistalsis

To elucidate further these characteristics, may it be stated that a cancer involving any portion of the intestinal tract has certain attributes recognizable with the roentgen ray. The mass of cancer in its growth eventually *projects into the lumen* of the viscus. This is the basis for the *defective filling* noted when barium is given. The margins of this involved



FIG 3 W Y female, aged 68 years. Loss of weight appetite and strength during last year. Now complains of slight difficulty in swallowing. X-ray findings. Cancer of the cardia. Confirmed at operation.

area are jagged, as though actual bites had been taken. Serrated, saw tooth, or other descriptive terms still fail to precisely convey the idea. A peaked, sharp angled, ragged margin where the barium shadow should be smooth edged attracts attention, suggesting the possibility of malignant invasion. The invading junction zone between tumor and normal tissue has certain roentgen characteristics. There is a liplike, rounded or rolled edge with evidence of graduated pressure as the tumor becomes thicker, and a thinning out of the barium density as it pene-



FIG 4 L P male, aged 62 years. Weakness and indigestion for six months. Progressive jaundice. X-ray findings. Massive carcinoma at cardia. Tumor seen through magenblase.

trates the interstices of the tumor, producing a 'halo' first described by Carmen. Barium partially outlining the tumor gives a characteristic fingerprint. Within the tumor mass, the barium outlines a weblike irregularity like drifted snow between bare mountain peaks. This pattern is wild, bizarre, and very different from the normal regularity of the usual mucosal pattern. And its chief characteristic is its constancy. The irregularities match on superimposed films as definitely as the whorls of a fingerprint. Spasm mimics the cancer but never duplicates the deformity on subsequent examinations in exactly the same way, and lacks this characteristic frozen constancy (Fig 5). So much for the defect itself.

The involved area is lacking in mobility. The lower esophagus has certain swaying movements transmitted from the heart, due to peristalsis. These are missing and if capable of palpation the area is found to be fixed in position.

When the patient is standing before the vertical fluoroscope, the tumor is often visible at the inner angle of the gas bubble (Fig 4). Barium is deflected over this area in an angulated manner.



FIG 5 K. F., female, aged 60 years. Tenderness and pain in epigastrium and left upper quadrant past eight weeks. Some loss of weight. X-ray findings. Filling defect of cardia, posterior aspect. Operative findings. Nodular masses seen in cardia, adherent to diaphragmatic opening.

The esophageal indications are easy to understand when there is a partial obstruction due to the tumor encroachment. Barium usually leaves the lower esophagus in spurts and rhythmically, this is changed to a continuous, small stream, which dribbles through the narrowed canal. The dilated esophagus above with retained barium and even antiperistalsis can hardly be missed by a competent observer.

The roentgen search for this lesion begins when the patient is first examined. The roentgenologist takes a careful history of the patient's reasons for a consultation. Following this, a thorough study of the patient standing before the vertical fluoroscope is made. The gas bubble is searched with the possibility of a visible tumor in mind. The patient is examined from all angles. A small amount of barium is then given and watched closely as it passes through the lower esophagus. Any hesitancy or delay or dilatation of the lower esophagus is

examined with utmost care. Films may be taken on the fluoroscope and generally are, especially if any abnormality is detected. These are taken at the proper angle, which fluoroscopy demonstrates best visualizes the area. Opposite obliques are always taken.

The first swallow of barium is also used to further examine the gastric mucosa. While the fundus is usually not palpable, some barium may be pressed upward, and a few films will certainly show the rugae in this area. Filling is better accomplished when the patient is supine or in Trendelenburg position on a tilt table. Study in various oblique positions is essential. These are some of the details that permit positive diagnoses to be made in the favorable cases. If no narrowing or irregularities of the margins are discernible, films may be taken anyhow to record the findings. We are sure that it is a universal experience to be surprised by the lesions that may be demonstrated on films, when they were not even suspected during the fluoroscopic examination. Anyone who becomes accustomed to the films that are obtained during fluoroscopy by a spot film device will feel a definite loss when forced to make a diagnosis in certain cases without such aid.

Examination of the gastric mucosa is facilitated by the use of short exposures on the Potter-Bucky diaphragm for maximum detail. The opaque meal should be of favorable consistency and flavored attractively so that it is not nauseating to the patient. Graduated pressure must be used in order to spread the material well over the rugae and in order to best outline the site of the lesion. When fluoroscopy demonstrates that the patient is most favorably positioned, roentgenograms are immediately obtained. Films that permit study of the viscus when only partially filled with the opaque fluid, to compare with the appearance when completely distended, are important. Observation only when there is complete filling results in the occasional missing of lesions, often of surprising size, which may be shown only when the mucosal surface is studied.

Examination as the stomach empties and when nearly all of the barium is out of the stomach is a favorable time to study the mucosa. An ulcer crater may be demonstrated an hour after barium has been given rather than on the immediate films

Fasting overnight and coming to the x ray department without having had fluids or solid food in the morning is an essential preparation when any serious attempt is made to study the gastric mucosa.

Addition of petrolager or acacia water or white of egg to the barium may increase its adhesive quality. A satisfactory ready made product is available which may be diluted to any consistency.

To further increase the size of the gas bubble, a Seidlitz powder may be administered. No water should be used, only fluid containing barium as well as the powders which should be alternately taken. The patient must be instructed how to cooperate and to suppress belching.

Examination with the patient supine aids in outlining the cardiac end of the stomach when the lesion is large, so does the Trendelenburg position in certain cases. Such a position may be necessary in order to demonstrate a small gastric hernia.

In making a positive diagnosis of the presence of cancer of the cardia of the stomach the following lesions may have to be differentiated

1 *Ulcer of the cardia*. A rather rare lesion and sometimes difficult to differentiate. Is usually on the lesser curvature but may be on the anterior or posterior wall. The typical crater is a characteristic roentgen finding. It may be of any size the larger the more likely that it is malignant also if the edges are irregular and the gastric rugae are not arranged in the usual stellate manner. It may have a surrounding inflammatory reaction and tumor (Fig 6)

2 *Diaphragmatic hernia*. Often without symptoms and an incidental finding. In order to make the positive diagnosis, it is necessary to examine the patient supine and in Trendelenburg position, otherwise the lesion will escape detection. Have the patient make a deep in-



FIG 6 G L male, aged 58 years. Main complaint is bleeding and vomiting of blood. X ray examination made elsewhere and advised that he had a duodenal ulcer. X ray findings. Provisional diagnosis of ulcer on lesser curvature just below the esophageal orifice. Confirmed at operation.

spiration and without breathing out, strain or bear down as though having a bowel movement. This forcibly outlines even the smallest hernia and permits detection when otherwise the findings would be negative. *It constitutes a rather frequent lesion when this procedure is carried out. The cardiac dome is above the diaphragm.*

An ulcer may be present in the gastric sac to further confuse the diagnosis.

3 *Gastric polyp*. May be a single lesion and involve the upper stomach. A filling defect usually of rounded character which displaces barium. May move a little in its location if pedunculated. Is a constant finding on every film and on re-examination. Best demonstrated when varying degrees of pressure are used. May be benign or undergo malignant degeneration.

4 *External masses*. It may seem impossible that extrinsic lesions such as a metastatic liver lesion could be confused with a cancer of the cardia. Such was the case, however at least once. The mass deformed the gas bubble and the patient even had a dilated esophagus and dysphagia. The mucosa had not been sufficiently studied.

5 *Cardiospasm*. The greatly dilated lower esophagus and lengthy retention in the esophagus dominate the picture. Barium may not enter the stomach for a long time. The history is of many years duration. The distal end of the esophagus is cone-shaped and the margins are smooth. Slight degrees of cardiospasm are often encountered in the older patients with retention for only a short time in a mildly dilated esophagus.





FIG 7 C S, female, aged 64 years Abdominal discomfort for several weeks Relieved by food Some vomiting Slight loss of weight X-ray findings Diverticulum of stomach near cardia Two diverticula at junction of first and second portions of duodenum

These patients do not complain of any dysphagia

6 *Ulcer of the lower esophagus* Is difficult to distinguish from cancer The patient is usually younger and the duration may be longer than in malignancy The filling defect lacks the irregular edge, and no mass is detected as a rule The differential may be possible only with the esophagoscope Repeated negative biopsies may still be deceiving

7 *Varices of the esophagus* Occur usually in the case with cirrhosis, a rarity otherwise May cause bleeding Produce rather typical tortuous netlike bands of decreased density (Schatzki) which are multiple and constant in the lower half They are due to enlarged vessels protruding into the lumen of the os

8 *Diverticulum of the cardia* An outpouching or saclike protrusion which retains barium after the stomach empties Usually without complaints and of years' duration Is definitely below the diaphragm Barium enters freely and outlines readily Of varying size Most common location is near the cardiac opening The sac has smooth walls, and air is seen above the fluid barium level (Fig 7)

9 *Giant rugae* These may produce roentgenographic deformities at the cardia that are

difficult to differentiate from cancer If it is possible to palpate the mass under the fluoroscope, the soft pliable mass, with increased size to the rugal markings when spread out under the fluoroscope, can be recognized Malignancy, as a rule, causes stiffness and fixation with actual loss of substance

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## Discussion

Dr John R. Carty, *New York City*—Dr Stewart's paper covers the field of carcinoma of the cardia in a most thorough and concise manner Radiologists and internists would do well to pay more attention to this often baffling condition As a result of considerable experience, I have come to regard carcinoma of the cardia with a great deal of respect The many times baffling clinical manifestations have an exact counterpart in the radiologic findings Dr Stewart has mentioned that the only symptoms may be general weakness and anemia These patients may simply fade away without any gastrointestinal symptoms whatsoever, the lesion being discovered at autopsy—much to everybody's embarrassment Again, a wide-awake clinician may suspect carcinoma, and his radiologist may not be able to demonstrate the lesion This occurs more frequently where the attention of the radiologist has not been directed to the possibility of a carcinoma of the cardia However, there are times when even the most careful and meticulous examination may reveal nothing

I would like to say a few words about a really extraordinary type of carcinoma of the cardia with which I have had some experience Occasionally, there may be a small carcinoma in the cardiac portion of the stomach, usually near the diaphragm Instead of forming a bulky adenomatous mass, the growth may insidiously extend through the lymphatics up into the chest where it spreads throughout the entire pulmonary lymphatic system and may, and often does, break through to involve the veins, but rarely going into the parenchyma This tumor produces a most unusual clinical picture There is

gradually increasing dyspnea, first only after exertion then more or less continuous. This becomes more severe pulmonary edema occurs and the patient may die in two to three weeks following the onset of symptoms. In one of my cases there was little or no weakness, practically no anemia and the total duration of symptoms was two weeks. The chest findings are generally those of congestion the unusual being that the heart shadow often appears normal. In the case that I refer to the pulmonary lymphatic system and veins were completely blocked by the tumor which had grown in a cord fashion. There was practically none in the alveoli. The primary lesion was very small.

In demonstrating these lesions I generally center the fluoroscope screen at the junction of the esophagus and stomach. If there is a small lesion in this region, one may see a split stream effect similar to a stone in the center of a swift brook. It may be only momentary and at times not demonstrable by radiography. I have found it useful to place the patient on his back

and have him take a full inspiration at the same time making pressure on the abdomen the screen being centered over the cardiac portion. In this manner the early rigidity on which Dr Stewart has laid so much stress can sometimes be demonstrated. In other cases radioecopy and radiography in the Trendelenburg position are indicated. There is no one method that can be relied on as Dr Stewart has indicated, to demonstrate these lesions. It requires plenty of time conscientious care, and experience.

All cases of unexplained weakness in the cancer age, unusual or unexplained anemia, and gastric symptoms where none existed before should have a gastrointestinal series with special reference to the possibility of a carcinoma of the cardia. The same may be said of all cases of unexplained dyspnea.

I wish to express my appreciation of Dr Stewart's paper and I appreciate very greatly the opportunity to discuss it.

## Correspondence

### EPILATION TECHNIC

To the Editor

The article by Dr Cipollaro on Electrolysis (39 1475 [1939]) is, of course the finest exposition of its kind and needs no comment. However for the novice (for whom he wrote it) I wish briefly to state here a few useful hints in technic of epilation which I worked out and employed in my physical therapy clinic at the Mount Sinai Hospital (resigned 1936) and private practice for many years.

The patient lies on her back on a flat table. The operator faces the patient. The needle-holder is not very light but has some weight and forms a straight line with the needle. The reason for this is because of the following easiest method of finding the depth of the follicle. I place the tip of the needle into the mouth of the follicular canal, holding the needle-holder in the direction of the hair shaft. When the needle is in this position I release the needle-holder signaling on. The patient makes the contact. The mouth immediately opens, dilates and the needle slips into the follicular canal automatically by gravity of the needle-holder. (One has only to guide the needle in the proper direction of the hair shaft.) This cuts

down needle manipulations which are most difficult for the novice. In order not to leave the needle in the follicle longer than necessary I employ the following system of counting. As soon as the depth of the follicle is reached I count (to myself in my mind) up to 20 and then try gentle traction. If the follicle is not yet destroyed I count 3 to 5 more, following by the traction. This is repeated until the follicle is destroyed. The same technic is tried on two more hairs of the same thickness. The average count is then taken. I found that the time consumed by this average count is almost the exact one necessary to leave the needle for the destruction of the follicle of hairs appearing to be of the same thickness. I believe that the novice will find in this technic a useful guide which will help him 'not to leave the needle in the follicle longer than is absolutely necessary' using the words of Dr Cipollaro.

Very truly yours

JOSEPH ECHTMAN M D

1175 Park Avenue  
New York City  
August 11 1939

# Medical News

## School Health, Past and Present

MICHAEL LEVITAN, M D, Rome, New York  
(President, New York State Association of School Physicians, Rome, New York)

IF we retrace our steps in the march of time, we find that school health was part of a school program in remote times. Physical training for health was part of the Spartan educational program. Ancient Palestine laid down strict regulations respecting the sanitary arrangements of the schools, prohibiting overcrowding lest the atmosphere become polluted and impair the health of the children. The ancient Palestinian educational authorities did not admit children to school under 6 years of age, because too early mental training might injure body development.

During the early Renaissance, Johann Amos Comenius, a Slavic educational reformer, was fully conscious of what is now called "Health Education." In 1833, France was the first nation to undertake school health work. Sweden was the first country to use the term "school physician" in 1868. In the United States, the first scientific and extensive examination of school children was conducted in Boston in 1894 by Dr. Henry Pickering Bowditch. Following this, medical inspection of school children gradually expanded. School inspection at that time was organized principally for the purpose of controlling communicable diseases, for the reason that the schools were considered possible hotbeds for dissemination of infection. Because of this prevailing notion, medical inspection of school children rapidly extended to other cities. By 1908, the number of cities outside of Massachusetts having medical school inspection reached seventy.

Systematic health work began in the schools of Chicago in 1895 and two years later in New York City. The same course was followed by Philadelphia in 1898. Medical inspection of schools was recognized to be so important that it prompted state legislatures to enact laws, making this service mandatory, and in 1889 Connecticut was the first state to make such a law. Massachusetts followed suit in 1906, and Pennsylvania passed similar laws in 1911, so in that year nineteen states provided for medical school inspection. By the year 1910, 337 cities in the United States had medical inspection with 1,194 school physicians, 371 nurses, and 48 dentists.

The New York State Medical Inspection Law was enacted in 1913. This law applies to the entire state with the exception of the first-class cities, Buffalo, New York, and Rochester, which have medical inspection regulations of their own. In this same year, the interest in school health reached such a height that an International Congress of School Hygiene was held at Buffalo.

School health enthusiasm in the United States kept growing at a considerable pace, and on October 13, 1926, 56 physicians, representing

Canada and the states of Colorado, Illinois, Massachusetts, Michigan, Minnesota, New Jersey, New York, Ohio, and Wisconsin met in Buffalo and organized the American Association of School Physicians. By March 29, 1929, this association had a membership of 390 physicians, representing 29 states, Canada, the District of Columbia, and Cuba. Two years ago, the association changed its name to that of the American School Health Association and enlarged its scope by taking in as members dentists, nurses, nutritionists, public health workers, and others engaged in school health work who have a scientific training.

Not so long ago, our own New York State Association of School Physicians was born. It is just emerging from its infant stage, endeavoring to stand on its own feet. Just as progress of growth and development of all growing thing depends upon care and attention, so will the function and progress of our association depend on the care and attention at the hands of its members. If the officers and members of this infant organization will serve its interests in the future as they have in the past several years of its existence, there can be no doubt that it will develop the strength and the courage necessary to cope with difficult problems, should such problems present themselves.

This in brief concludes a sketch of the successive stages of school health from the earliest known times to the present day. This brief outline shows the world's appreciation of school health and the importance which history conferred on the school physician.

Today, with things tending to change, there is an episode in the history of school health—the challenge of the school physician. School physicians as a group are stigmatized as inefficient and lacking in qualifications to do health work. With all due respect to the judge or judges in question, this opprobrium is herewith rejected as an unjust and unfair accusation. To be charitable, this statement may be charged to a slip in judgment. That school health service is far from ideal or what it should be is granted. But to lay the fault at the door of the school physicians is a grave error and an injustice. Reflection tells us that the fault does not rest with the school physicians, but with the laxity of regulation enforcement relative to the prescribed annual medical examination of school children. In the past, the state regulation, well-intentioned as it is, failed to enforce this requirement, and no school system made provision to have an adequate personnel that could give every school child every year a thorough medical examination.

To give an efficient and thorough medical examination every year to 2,000 or 3,000 children.

Presidential Address Delivered before the Annual Conference of the New York State Association of School Physicians, Saratoga Springs, New York, June 26, 1930

besides other work pertaining to health and safety is an impossibility. To examine that many children, quality has to be curbed. Because the number of children he has to examine is way out of proportion to the time he can deduct from his numerous duties, the school physician is reluctantly driven toward the inevitable tendency to substitute quantity for quality. To remedy this it is proposed by a health authority to substitute three medical examinations in the entire school life of the child for the annual examination. This kind of compensation amounts to doing less for not enough. It is needless to say that this remedy is worse than the present practice and is not a panacea for inefficiency in health service. A routine of only three medical examinations in the entire school life of the growing child is very unsound to say the least.

There is no question but that the child attending school is entitled to a complete and thorough medical examination every year. It is also a fact that such an examination cannot be done in a haphazard manner. It is also well known that owing to limited time the school physician cannot reach all children nor give them a complete medical examination. Enacted legislation requiring the presentation of the prescribed health certificate from the family physician would solve the problem of giving every child a complete annual examination to a considerable degree. It is fitting at this point to remind the family physician not to rely on the fallacious impression that he knows his child and therefore give him a casual once-over and fill out the health certificate. The examination must be thorough and complete. No examiner whether school or family physician should play the role of the mind reader and take things for granted. He should rather act like the scientific investigator. The medical examinations by the family physician would make it possible to have all medical examinations completed and the records filed within the first two months of the school year and give the school physician more time to devote to the examinations and re-examinations of the athletic groups and to other equally important health problems. There should also be a law requiring every child in the state to be immunized against diphtheria and smallpox before entering school for the first time.

No matter how thorough an examiner may be efficiency of examination requires time, quiet and privacy. The examiner should therefore, be provided with ample time and a private, warm well lighted, and quiet room. In strict privacy and with the assistance of the school nurse the child should be stripped from head to foot for a general body inspection and thorough examination. This is, by the way neither a recommendation nor a suggestion to change or modify the state regulation. The emphasis is made with no other intent or purpose than to stress the importance of the described procedures as contributing factors of a thorough and efficient medical examination which every school child should get but which every school physician is unable to give, because of the misconception of modesty on the part of the parents and boards of education. As a matter of emphasis let it be repeated that complete removal of clothes is absolutely essential to satisfactory evaluation of the circulatory and nutritional status of the child

and the soundness of his vital organs. The body must be bare for a thorough exploration of the spine, ribs joints and arches, and the palpation of the liver and spleen. In the nonstripped examination, defects and deformities are over looked. If there is anyone who can examine for hernia or undescended testicle or other such defects or malformations through the clothes we should all like to know of it.

The nose and the throat, the tongue the teeth the oral cavity and gums should be thoroughly investigated. The eyes of the school child are entitled to a more efficient examination than that received by the prospective automobile driver on the street. The examination should be more extensive than the mere Snellen test and should be supplemented by the muscle balance and color tests. The examination should be conducted by a competent ophthalmologist who is far better able to interpret visual acuity or other defects than the school physician or the private practitioner unless he, too is an eye specialist. The ears should be carefully examined with equal consideration with an ear speculum and auditory acuity should receive the painstaking audiometer test. Speech is another item that should not be forgotten in the examination. Defective speech should be investigated and the cause thereof ascertained and corrected whenever correction is possible. Stutterers and stammerers should receive training by especially qualified teachers whom the schools should obtain. Every child should also be examined for enlarged glands in the neck and groin and for goitre. Complete health evaluation also demands a qualitative urinalysis a hemoglobin test chest radiography, and blood pressure. Puny children, in particular or those whose weights are more or less stationary or those who have repeated fainting spells should have the urine tested for glycosuria.

The mental status of the child should not escape the examiner's attention. When a child requires a psychiatric examination, the examiner should be reasonably sure of negative physical findings before the pupil is referred to the psychiatrist. Since so much mental deviation is a manifestation of physical disease, no physical examination should be considered too thorough before the child is recommended for a psychiatric examination. One may not err in offering the opinion that it is the duty of the school to find out through its medical department why a child acts in a perverted manner whether there is a pathologic cause in his inability to cope with school problems or in his maladjustments to the school environment. Where should destructive habits and maladjustments of school children be remedied or their energies that are being wasted be converted into more helpful channels if not in school? Proper training of the school child may even strike at the root of crime and be an important factor in its prevention. A little stretch of the imagination may help to conceive the part the schools can and should play in the making of better men and women from properly cared for boys and girls through an efficient all around health service and education. A mere glance at what is being made out of the earth's crude elements will convince us at once that the child is no less plastic.

We so often speak of the whole child or the child as a whole. Yet in making the physical

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examination, one is frequently at a loss as to what part of the anatomy the school physician is to examine, and what part he is to leave for the family physician. Completeness in anything has no broken or dividing lines. Neither should the examination of school children be broken up. Thoroughness of examination is no infringement on the private physician. The understanding physician knows quite well that the school physician is not his competitor and does not practice curative medicine in the schools. The school physician is a child health servant, a supervisor and teacher of health, and a practitioner of preventive medicine. He does not treat disease in the schools but works for its prevention. He conveys to the school children and their parents the value of health and how to conserve it. He also creates among them an understanding and an appreciation of the practitioner of curative medicine, advises of the dangers of self-medication, teaches when to consult the physician and how to avoid quacks, cultists, and medical charlatans. In this sense, he is a booster for the family physician.

At least, no less thought and consideration should be given to building child health than to building a house or constructing an engine. When, for example, a house is to be built soundly and adequately, the job is not entrusted to a singlehanded Jack-of-all-trades builder. A reputable contractor or architect who lays out the plan is engaged. After the plans are laid, a crew of men to build the structure is hired. This crew consists of men who are specialists in their respective trades. Thus are employed masons, carpenters, plumbers, electricians, painters, etc. In building child health, which is no foundation of the health of the nation, there is no procedure that even remotely compares with that of building even a cheap house. In matters of building the health of the school child, municipalities want to get by with a singlehanded Jack-of-all-branches of medicine who has to be supererudite and proficient to do justice to the cause of school health. This school physician is expected to erect a sound and adequate structure of child health and health education single handed. It is needless to say that the school physician is neither a miracle man nor a magician.

In a sizable school system, to build properly and efficiently the structure of child health under discussion, there should be an ample staff of medical examiners, ophthalmologists, otologists, orthopedists, physical training teachers, especially trained teachers for children with defective speech, psychologists and psychiatrists, dentists and dental hygienists, and an adequate number of school nurses. Consulting specialists in a school health system are not a mere asset or luxury but a necessity. It is granted that a staff of such calibre would inevitably increase school expenditures, but the nature and quality of its work would bring compensatory returns in better child health and education way out of proportion to the extra funds expended. That we serve the nation through health service and education of the child is an established fact, and the better we serve the child, the better we serve the nation. It is no idle talk to say that the health of the child does not belong to him alone. It also belongs to the nation, and, therefore, no amount expended on his health and education is too much. Because of the sublimity of purpose

of school health service and education, it is the duty of the school and municipal authorities and of all those to whom the health and education of the children are entrusted, to give the best of themselves to school health service and health education.

The State Health and Physical Education Division has recently issued an excellent manual on the administration and supervision of the school health service. To follow the course of service as prescribed by its contents would be ideal and satisfying to the conscientious school health worker.

In conclusion, it may be said without reservation that from a school health standpoint there is no substitute for a thorough and complete medical examination, there is no service that matches the importance of getting physical and mental defects in school children removed or remedied, nor is there anything of greater significance than the imparting of health knowledge and health-mindedness in the learning child, and nothing can take the place of proper and adequate medical supervision of school health.

## Summary

School health in some form has existed in even the remote past and has continued to the present time.

The school physician played a very important part in school health in the past, is playing his part in the present, and will play his part in the future.

Revision and improvement in school health service is of utmost importance today. Efficient annual medical examination of every school child should be enforced and the child be made to bring the required health certificate from the family physician before he enters school. Every child in the state should be required by law to be immunized against diphtheria and smallpox before entering school for the first time.

Schools should have, besides the present usual health personnel, an associated staff of specialists consisting of ophthalmologists, otologists, orthopedists, psychologists and psychiatrists, or mental hygienists, who could be called upon for consultation at any time when required by the school physician. Until all these are made possible, we should do our level best with what we have at our command and follow the prescribed outline and method of the excellent State Health and Physical Education Manual on the administration and supervision of school health service.

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## More Typhoid Carriers

**DR. EDWARD S. GODFREY JR.** State Health Commissioner announces that there were 412 typhoid carriers under supervision in upstate New York exclusive of those in state institutions, at the close of 1938 14 more than at the end of the previous year. During the year 45 new carriers were added to the register and 31 removed.

Dr Godfrey in a statement concerning the 412 typhoid carriers, said "Twenty seven were discovered as a result of epidemiologic investigation of sporadic cases, 10 by means of released cultures 3 were discovered incidentally to attacks of acute cholecystitis, 1 through an attack of acute cystitis 1 through the development of a costal osteomyelitis subsequent to typhoid fever, and 1 through investigation of a positive Widal in a specimen of blood submitted for the agglutination test for undulant fever. Two previously discovered carriers were added to the register 1 who was discharged from a state institution, and 1 who came from another state.

"Two typhoid outbreaks during the year were traced to carriers. An outbreak of 13 chronically recognized cases occurring in July was caused by a man subsequently found to be a chronic typhoid carrier who had supplied raw milk to these patients. The second outbreak consisting of 3

cases was caused by a known typhoid carrier who prepared food consumed by these patients at a picnic.

Fifteen cases of typhoid fever occurred during the year which were believed to have been caused by 10 previously known carriers. Eleven of this number were among household contacts of carriers. Nine of these 11 patients had never been immunized 1 was immunized in 1934 and the other was immunized before a final diagnosis of typhoid fever was made.

About 3 per cent of the typhoid cases reported as having had onset in the previous year, 1937 and who carried the disease, are considered to have become chronic carriers."

Dr Godfrey also called to the attention of health officers throughout the state, recent amendments to the State Sanitary Code which will apply to local and county fairs during this summer and fall and will require food concessions at the fairs to meet certain sanitary requirements.

Attention is directed particularly to the recent amendments to Chapter XIV relating to restaurants which require disinfection rather than sterilization of all eating drinking and cooking utensils used in public eating and drinking places.

## County News

### Albany County

Dr Arthur J. Bedell, of Albany recently delivered an address before the Ophthalmological Society of the United Kingdom in London on "Fundus Changes in Diabetes."

### Allegany County

Dr Maurice G. Sheldon Olenz was guest speaker at a meeting of the Allegany County Medical Society at Wellsville on July 27. The eighty fifth annual meeting of the society will be held on October 20 at Belmont.

### Chautauqua County

The annual summer meeting of the Medical Society of Chautauqua County was held at Chautauqua Lake on July 26. The morning program was as follows 10 00 "Reduction of Mortality Following Coronary Occlusion," by Dr G. E. Hall of Toronto, 10 45 "Diagnosis and Management of Cancer of the Breast," by Dr Arthur C. Christie, of Washington, 11 30 "Sulfapyridine in the Treatment of Pneumonia" by Dr Russell L. Cecil of New York.

In the afternoon Dr Cecil and Dr Christie delivered addresses in the Amphitheater open to the public. Golf tournament and boat rides also were scheduled and in the evening the opera *Il Trovatore* by Verdi was presented.

### Erie County

A revised medical program for care of the needy calling for an estimated payment of \$185,000 a year to Buffalo physicians, was submitted by County Welfare Commissioner Thomas W. H. Jacock to the State Welfare Department on July 22.

Details of the new plan also were sent to David C. Adie state welfare commissioner for his action.

Last spring Mr. Adie rejected a proposal prepared by Commissioner Jacock, which called for payment of \$245,000 annually to physicians for treatment of ailing persons on county relief rolls.

The state official at the time asserted the Buffalo medical program should not exceed \$40,000 a year.

How Commissioner Adie would regard the substitute plan was a matter of conjecture. In any event it appeared to be the sentiment of local relief authorities to defer the plan until next January 1 even though state approval is obtained in the meantime.

Under the revised plan, physicians would be paid only for "emergency calls" at the rate of \$2 for each home visit.

Calls by a client at the office of his physician for medical treatment would be barred. The maximum a physician could collect from the county would be \$50 a month.

The original proposal would have given physicians \$1 for each office visit.

Physicians at present receive no pay for treating Buffalo relief recipients, and for the past year they have been agitating for a program which would give them partial pay for their services.

The new program took five months to prepare, Mr. Jacock said. He declared it has been approved by the Erie County Medical Society hospital authorities, and the faculty of the University of Buffalo School of Medicine.

"The revised program coordinates medical and hospital care for the indigent," said the commissioner. "In my opinion it would give Buffalo one of the best medical setups in the state."

Commissioner Jacock explained the proposal is still in the formative stage, and that any revisions suggested by the state welfare department would get serious consideration.

After the plan has gained state approval, it will have to go to the county welfare board and then to the board of supervisors for action before being put into effect.

Conscious that propaganda adverse to the private practice of medicine is being employed on a huge scale to influence the public in behalf of state medicine, a large and representative group of members of the medical societies of Erie and Niagara counties are promoting a newspaper publicity campaign to offset the propaganda.

By means of a series of full-page display newspaper articles, the physicians propose to tell the public what is back of bills pending in State Legislatures and in Congress for the promotion of state medicine, bills which they claim are obviously designed to pave the way for compulsory sickness insurance under government control and political domination.

The county medical societies of Erie and Niagara counties have approved the publication of the articles.

Discussing the educational campaign, the president of the Medical Society of the County of Erie, observed:

"For the past year or more physicians have been the target for much abuse in magazine articles of national circulation. A vast amount of money is being spent on these attacks. Scores of books on the subject of socialized medicine have been published recently, unfavorable to the present system of medical practice.

"Physicians are in favor of a health program to meet health needs, when the program is based on a sound, constructive, and progressive plan, but we are vigorously opposed to the spending of millions of dollars of the taxpayers' money on haphazard schemes for preventive medicine which are controlled by politicians at Washington. Politics and medical care will not mix, and in the end the patient suffers most.

"We propose to use printers' ink and the rostrum to disseminate information useful to the public so that they can learn the physician's attitude on this question. The newspaper articles have been made possible by voluntary subscription by members of the medical societies for the furtherance of a publicity campaign. While some physicians feel we should ignore the propaganda of our adversaries, many others think we have remained silent too long.

"The Wagner health bill now before Congress provides for an expenditure during the next three years of \$455,000,000, and after that period no limit is set for these alleged health appropriations. The money is to be disbursed by the surgeon general of the United States, the social security board, and the chief of the children's bureau of the department of labor. The sponsors of the bill admit they have no program other than to spend the money as they see fit. With a constantly falling mortality rate in the United States, for which the medical profession is responsible—a rate lower than that of European countries where they have government control of medical practice—we feel that system does not apply to America. In any event medical care of the sick is a doctor's problem."

"Down in the robust first ward last night they mourned the death of Dr. Edward M. Dooley, physician and counsellor to many a hardpressed family during a career of unselfish service that

covered almost half a century," said the *Buffalo Courier-Express* of July 21.

"Till for the last six months, Dr. Dooley died yesterday at his home, 310 Norwood Avenue. He was seventy-eight years old.

"Although he was an eminent bone surgeon, Dr. Dooley was known best as a general practitioner in the waterfront community and he was revered simply as 'Doctor Dooley'.

"A veteran of the horse and buggy days of locomotion, Dr. Dooley was credited with bringing into the world 5,000 babies, most of them of sound Irish stock, and his services were eagerly sought wherever a cluster of Celtic families could be found—not only in the 'first' but in many parts of the city.

"In the premachine era, Dr. Dooley and his brown bag were familiar sights in every corner of the old ward as he clucked to his horse during the unending round of calls on patients. Noted for his charitable services, he was honored with the title of 'head man of the first ward'.

"Even as he kept abreast of developments in his profession, so did he keep up with advances outside his chosen field, and more than thirty years ago he bought the first automobile in Buffalo. The machine provided new thrills for first ward children and they gleefully chased after it as the doctor chugged over the rough paving of the neighborhood.

"During his long career Dr. Dooley served as chief surgeon and chief of staff at Emergency, Mercy, and Sisters hospitals. Particularly successful in the field of bone surgery, he read papers on the subject before New York and Pennsylvania state medical associations and the American Medical Association. He was chief surgeon here for the Erie and Buffalo Creek railroads. In 1919 Niagara University gave him an honorary LL.D. degree.

"Surviving are nine children."

Dr. August Lascola was the guest of honor at a testimonial dinner at Hotel Statler, July 19, when he was presented with the award of Cavaliere Ufficiale della Corona di Italia bestowed upon him by King Victor Emanuel III of Italy. The award was presented in recognition of services rendered by Dr. Lascola in raising funds for the Italian Red Cross during the war in Ethiopia. Presentation was made by Dr. Rocco A. Spano.

#### Kings County

Compulsory instruction in the ABC's of personal hygiene and public health for all food handlers in New York City is demanded by the public health committee of the South Brooklyn Medical Society in a report submitted to the council of the society.

Charging that a survey conducted by members of the society disclosed "a general ignorance by food handlers of the basic elements of personal hygiene and of simple scientific facts regarding contamination of foods," the report requested immediate action by the City Council and Dr. John L. Rice, Health Commissioner, in making attendance at such ABC health lectures a requisite to the issuance of a food handler's permit.

"Instruction should be given by physicians trained in problems of public health under the auspices of the New York City Board of Health," the report suggested, adding that "applicants for

food handlers permits be required to submit to a written quiz on their knowledge of hygiene and food contamination a knowledge to be based on the short series of lectures which they will be required to attend. If attendance at such lectures is impractical we suggest the issuance of an illustrated booklet on which a written quiz could be based.

The report stated that restaurateurs and others serving food in certain neighborhoods are still drying the silver on aprons or on cloths used for other purposes. Rinsing dirty glasses in luke warm water which would hardly destroy bacteria is another general practice, as well as scratching the head or other parts of the body and then handling food. Members of this committee have seen grocery and delicatessen store proprietors and employees handling filthy boxes and baskets and then stop to cut cheese with a machine handling the slices with dirty hands.

'There are still millions of rolls and loaves of bread that are distributed by hand and are displayed without a wrapper. There are still thousands of dollars worth of unwrapped penny candy sold in small neighborhood stores which are patronized by children and are attended by members of a family who think nothing of coughing before selling the candy to the public. These are all splendid ways in which to spread disease.'

The report submitted by the committee headed by Dr Pasquale J Imperato founder of the society and chairman of the public health committee, was received by Dr Lewis Pearson, president of the society for action by the council governing board of the organization.

Dr Harry Plotz of Brooklyn who came home on the *Normandie* on July 31, has been conducting successful experiments with a new smallpox vaccine at the Pasteur Institute in Paris where he is laboratory chief. It has been tried on 160 000 French army men and colonists and has been found very successful.

#### Livingston County

On August 2 1939, the medical societies of the counties of Livingston Wyoming and Genesee held their annual 'Tri County Meeting'. The golfers fought it out at the Genesee Country Club at Genesee New York in the afternoon. The doctors wives played bridge at the Avon Inn Avon New York in the afternoon. Prizes were contributed by numerous pharmaceutical houses. The handicaps will not be mentioned.

At 7 P.M. nearly one hundred dinners were served at Avon Inn to the doctors and their wives.

Dr Terry M. Townsend president of the State Society was guest speaker after dinner. He discussed some of the economic problems facing the doctors of today commenting on the recent decision in the courts on the government action against the A.M.A. He also discussed the Wagner Health Bill.

Dr Townsend urged every physician to familiarize himself thoroughly with the political problems facing physicians today and then to educate the public to understand better what should be done. His was an optimistic presentation of a timely topic.

—Reported by Alden J Townsend M D  
Secretary Livingston County

#### Monroe County

The annual picnic and business meeting of the Pathological Society of Monroe County was held at the Newport House on the afternoon of June 21.

Preceding an evening entertainment and dinner the membership present, close to 200 elected Dr Norman J Pfaff president. Dr James S Houck was elected vice president and Dr Ellis B Soble secretary treasurer.

Beginning at 3 00 P.M. a series of athletic events was scheduled by Dr M Davidson.

The winning baseball team was captained by Dr F Karl Holzwarth.

Egg Throwing Contest Winners—Doctors Brigham and Herrman.

Golf Approach Shot Contest Winner—Dr Walter Riley.

Golf Pitch Shot Contest Winner—Dr Ellis B Soble.

Quits contests were won by Drs Ruggles Brigham McAmmond Beaven Daniels and Aikman.

Numerous door prizes were also given.

#### New York County

There has not been a single death from measles in New York City in over a year according to Thomas J Duffield registrar of records, in his report to Health Commissioner Dr John L Rice reviewing the city's health during the first half of 1939. Moreover there are good prospects that seven of the eight health records hung up in 1938 will be bettered this year. The exception, Mr Duffield points out is due to the outbreak of colds and influenza during January and February and this may make it impossible to attain quite as low a general death rate as in 1938.

It is particularly gratifying says Mr Duffield's report, to note the further decline in the death rates of infants and of mothers in childbirth. For the first six months deaths under 1 year of age numbered only 2 137. On the basis of 50 916 living births during the same period this is a rate of 41.9 per 1 000 births. Mothers dying in childbirth numbered 167 a rate of 3.3 per 1 000 births. Only a few years ago the rate was 5 or even 6 per 1 000.

Equally gratifying is the low number of deaths from the acute contagious diseases of childhood. There has been no death from measles in the past twelve months. Deaths from diphtheria since January 1 were only 15.4 less than during the corresponding period in 1938. Deaths from whooping cough were only 18 since January 1 as against 46 at this time last year. Scarlet fever deaths were only 11 as against 14 in the same period in 1938.

Another record bettered this year is that for typhoid fever in which so far only 7 deaths have been reported, as against 11 at this time in 1938.

Both tuberculosis and pneumonia deaths are less than they were during the first 6 months of 1938.

The Government of France has bestowed the decoration of Chevalier of the Legion of Honor on Henry C. Falk, M D in charge of the gynecologic department of New York's French Hospital.



### Oswego County

The September meeting of the Medical Society of the County of Oswego will be held in conjunction with the meeting of the Fifth District Branch on September 26 at the Pontiac Hotel in Oswego. The program is being arranged by Dr. Joseph Lawrence.

### Queens County

The Public Works Administration, now a part of the Federal Works Agency, contributed a total of \$2,552,164 for the improvement of hospital facilities and construction of health centers in Queens in connection with the joint six-year building program of the PWA and the city's department of hospitals, begun in 1933, it is announced by Colonel M. E. Gilmore, regional director of the administration.

Alterations to Queens General Hospital, partial construction of the Queens Tuberculosis Hospital, erection of the Corona Health Center, and improvements to Neponsit Hospital were made possible by the grants, Gilmore's report showed.

At Queens General Hospital in Flushing-Hillcrest the administration provided \$382,757 of the \$800,000 needed for the alterations of and addition to buildings and installation of hospital equipment.

The ten-story Tuberculosis Hospital, on a site adjoining Queens General, is in the process of construction. Of the \$3,665,404 which it will cost when completed, the PWA furnished \$1,649,431.

The Corona Health Center at Junction Boulevard and 34th Road, which is rapidly nearing completion, was granted \$168,750 of the total cost, which will reach \$375,000.

At Neponsit Hospital, Neponsit, \$842,726 is being spent for the construction of a nurses' dormitory, refrigeration plant, and power house. Of this sum the PWA supplied \$361,726.

In the entire city the program totalled \$25,000,000, approximately half of which was furnished by the Administration.

### Richmond County

Public hospital and health facilities on Staten Island have been improved at a cost of more than \$2,000,000 in a joint PWA-city construction program during the past six years.

Topping this program in Richmond Borough is the new Children's Hospital at Sea View Hospital, a six-story building which cost \$967,863 and provides 600 beds.

Of the total cost, \$412,363 has been a total grant from the WPA, the balance of the bill is borne by the city.

An enlarged nurses' home, costing \$494,000, also has been constructed at Sea View Hospital. The grant was \$128,148 from the PWA. This addition increases the facilities of the nurses' home by 300 beds and adds many recreational advantages.

Sea View also benefited by enlarged quarters for its isolation building, which cost \$221,500, and enlarged boiler, generating and refrigerating systems at the power plant.

Another big improvement, in line with the city's health department program, has been the construction of the Richmond Health Center on Stuyvesant Place, St. George, at a cost of \$303,636. The PWA grant for this building was \$136,636.

The Health Center houses all public health offices, public laboratories, and headquarters for many private welfare and health agencies.

### Seneca County

The annual meeting of the Seneca County Medical Society will be held on Thursday, September 14, the place and program to be announced.

Seneca County Welfare Commissioner Emerson G. O'Connor has turned down certain proposals made to him by the Seneca County Medical Society relative to medical welfare compensation.

"The 'final fee bill' recently submitted to the society, made up of 21 doctors and surgeons of Seneca County, by this department, remains final," the commissioner said.

O'Connor said he notified the Medical Society, of which Dr. Duane B. Walker, of Waterloo, is secretary, to that effect.

The commissioner made this announcement following the rejection by the Medical Society of some of the items included in the "final fee bill." The society, however, in expressing a willingness to cooperate with the welfare commissioner in reducing the county welfare medical bill, accepted most of the items.

In its latest communication to the welfare head of the county, the medical group characterized as "extremely unfair" the limitation of fees by the month or year.

The following schedule is to become part of the fee bill as approved by the department of public welfare of Seneca County in so far as it applies to services for the needy sick. This schedule became effective as of August 1, 1939.

1. No fee is to be more than \$100 less 40 per cent for any major operation. Exclusive of all aftercare. Charges for the operation are to be in accordance with the relative seriousness of the condition.

2. The rates for minor operations to be followed as listed in the medical manual of 1936.

3. All anesthetics to be \$10 for major and \$5 for minor operations and no extra charge for special anesthetics.

4. Surgical fee less discount to cover two weeks' care, after two weeks add \$4 per week in cases where daily dressings are to be done.

5. Assistants \$10 for major, \$5 for minor.

6. Obstetrics, \$25 all inclusive rate, including prenatal and postnatal care.

7. Medical cases in hospital to be charged at the rate of \$2 per day for the first patient and \$1 for each additional patient, provided that total charge for visits to hospital does not exceed \$4 on any one day.

8. Only one charge per day to be made for the care of any patients at hospital or home. No additional payment for additional patients treated in the same household.

9. No payments shall be made for mileage as such in any home or hospital cases. In the discretion of the commissioner a higher fee may be allowed in certain instances.

10. Services for consultation in the home or at the hospital shall be \$2. Exceptions to this rule only when specifically authorized by the commissioner.

11. Assistant's bills for each case are to be approved by the surgeon in charge of the case.

12. All bills rendered must show name and age of patient, diagnosis and prognosis. If in the hospital, name of hospital.

13. No bills to be accepted unless authorized by the public welfare department of Seneca county.

14. Limit to one doctor \$200 in any one month but not to exceed \$1,800 in any one year.

The county's medical bill for welfare relief in 1938 was slightly more than \$37,000 and it is expected that the new fee schedule will cut this item of welfare expense by approximately 25 per cent.

Welfare Commissioner O'Connor submitted a schedule for approval to the Seneca County Medical Society several weeks ago. A counter proposal in which the medical society accepted some of the schedule and declined others was submitted to the welfare department. From these two and with further cuts made from the counter proposal of the society, the final fee bill is now in the hands of physicians.

Before the final fee bill was prepared Mr. O'Connor consulted with Dr. Jackson Davis, chief medical advisor for the state department of social welfare.

### St. Lawrence County

The meeting of the St. Lawrence County Medical Society at Potsdam on Aug. 31 was of a social nature with no formal scientific program. All arrangements have been made for the program and entertainment of the Fourth District Branch meeting at Ogdensburg on Sept. 19 and 20 reports Dr. Jay E. Meeker, president of the County Society.

### Wayne County

The Wayne County Medical, Legal and Dental Professions and their wives and families met at Sodus Bay Heights Country Club Tuesday August 8. Golf bridge and inspection trips to the Wayne County Health Camp made up the afternoon program. Mat Gaffney of Webster spoke at the dinner that evening.

### Westchester County

The Westchester County Medical Society has its first fall meeting on Tuesday evening, September 19, at New York Hospital, Westchester Division, White Plains. Dr. Paul Reznikoff will speak on "Blood Diseases in General Practice."

## Deaths of New York State Physicians

Name	Age	Medical School	Date of Death	Residence
George H. Calkins	78	Buffalo	May 12	Buffalo
Adelbert D. Dye	61	Hahne Philadelphia	April 10	Helmuth
Edward B. Kaple	66	Cleveland	July 28	Camillus
Henry W. Kemp	54	Toronto	July 10	Ridgewood
John L. Loutfan	63	Med. Chir. Philadelphia	August 5	Coxsackie
Isaac B. Nash	40	Univ. & Bell	July 27	Port Chester
Edward P. Philbin	40	Buffalo	July 1	Buffalo
Robert F. Zeiss	46	Texas	August 8	Manhattan

## THE DOCTOR'S EPITAPH

The doctor sleeps! No more at pain's behest  
 Shall he relinquish his much needed rest  
 No more his skillful hand and kindly heart  
 Shall give to some new life a proper start  
 The doctor sleeps! His fighting days are done  
 But hundreds live because of bouts he won,  
 And, generations hence, those will draw breath

Who would not be had he not conquered death.

The doctor sleeps! Might we his deeds recall,

His name would blaze in fame's enmarbled hall

But serving modestly through life, it now seems best

Merely to write, his work survives and let him rest."

—Anonymous—Canada M.A.J.

# Hospital News

## A Famine of Hospital Interns

**T**HE PROBLEM of supplying interns for our hospitals is growing more acute each year, according to *Hospitals* (Chicago), official organ of the American Hospital Association. If the graduates of the medical colleges in 1939 were equally distributed among the 6,000 registered hospitals, there would be fewer than one intern to a hospital.

If they were equally distributed among the 2,300 hospitals approved as meeting the minimum requirements of the American College of Surgeons, there would be less than two and one-half interns to the hospital. More than 800 requests for interns in 1938-1939, coming from good hospitals, were left unanswered.

Is it possible, and the question is frequently asked, that our medical colleges are graduating or can graduate enough physicians to meet the present and future demands of our population, including the requests of our hospitals for interns?

### Nothing Being Done about It

With the growing increases in the number and size of our hospitals, many of which are new institutions built, equipped, and ready for occupancy in twelve months, the securing of interns becomes more difficult.

Nothing has been or is being done to remedy a serious situation. It takes six or seven years of

intensive schooling to prepare a student for his graduation in medicine, and there is one of two courses open to him, either to engage immediately in private practice or to continue his medical education as an intern or resident in a reputable hospital.

The supply of interns, as well as of physicians, is unevenly distributed. Each year the hospitals in our ten largest cities appoint approximately one half of the medical graduates to internships. Those remaining are divided among other hospitals throughout the country.

### Results Are Serious

The results of this uneven distribution, this lack of interns in so many of our hospitals, are reflected directly in the care the patients receive, the almost complete absence of well-kept, scientifically valuable medical records in hospitals without interns, and a corresponding sacrifice in the value of internships as the media of acceptable postgraduate education.

The intern problem becomes the concern not only of the hospitals, but of the colleges of medicine, of our medical educators, of the interns particularly, and most emphatically of the patients admitted to our hospitals.

The solution of this problem cannot be long delayed.

## The Hospital and the Claim Adjuster

A frequent visitor to the hospital is the claim adjuster, representing some insurance company and seeking information about the injuries suffered by someone who is making a claim. The adjuster's interest, it is true, is perfectly legitimate, but, remarks the editor of *Hospitals* (Chicago), the hospital, on the other hand, is primarily interested in the injured person as a patient. Its function and concern is to provide the treatment he needs. It also has a legitimate financial interest in the case, in that it would like to be reimbursed for the cost of the service it renders the patient. The hospital record of the patient is made up of his history (given by the patient), findings of examinations, description of operations, and of other treatments.

The hospital holds that the record is the property of the hospital and that the information it contains concerning the patient is of a confidential nature, not to be divulged without the consent of the patient.

If, when the claim adjuster comes to the hospital seeking information concerning the patient, he brings with him a written authorization signed by the patient or by the patient's attorney, he should experience no difficulty in obtaining the information he seeks.

If he does not have such authorization it is likely that he will be told that he cannot see the record or be given data from it. This may cause some inconvenience or delay, but such authorization can be obtained in a high percentage of cases.

All this seems so very simple that it is difficult to understand why any misunderstandings should arise when it is only a matter of tact, courtesy, and fair dealings. Unfortunately, however, they sometimes do arise.

The claim adjuster makes a mistake if he antagonizes or gains the ill will of the hospital executive, as he may thereby make difficult the future contacts of his company with the hospital in question. The hospital executive, in like manner, makes a mistake if he antagonizes or gains the ill will of the claim adjuster and, thereby, creates an unfavorable attitude on the part of the insurance company involved toward the hospital.

A wise claim adjuster is mindful of the fact that his company may want the cooperation of the hospital with reference to cases that may arise in the future. It is not a mark of finesse on his part if he urges that a concession be made in a particular case because of the fact that his company has always dealt fairly with the hospital. He can hardly expect that a conscientious hospital executive will violate his institution's principles and policies because of such contention.

The wise and experienced hospital executive should keep in mind the fact that the good will of insurance companies bears a direct relation to the hospital's ability to obtain reimbursement for service rendered patients whom it has treated for accidental injuries. He should bear in mind that the claim adjuster has come to the hospital on a legitimate business mission and should treat him accordingly.

There is another type of situation in which insurance companies through their claim adjusters have dealings with hospitals. This has to do with the settling of claims in cases in which the amount of settlement is small and the hospital bill relatively large. In such instances the insurance company may ask the hospital to reduce its bill.

Here again, if the hospital's experience with the

insurance company in question has been one of friendly cooperation and fair dealing satisfactory adjustments can usually be made.

In brief, if the contacts of claim adjusters and hospital executives are characterized by courtesy and mutual understanding of each other's problems principles and points of view both will obtain for their respective organizations the maximum value from those contacts.

## Newsy Notes

The new and larger \$5,000,000 Memorial Hospital for the Treatment of Cancer and Allied Diseases, at 444 East Sixty-eighth Street, New York City, has been opened only since June 14 but it is overcrowded already with patients from New York and elsewhere and has a waiting list larger than the capacity of the institution. George F. Holmes, superintendent of the hospital, announces:

The capacity of the institution when completely equipped will be 108 patients. With all floors now open except the tenth, which is for private patients, the hospital, largest cancer institution in the world, is housing 133 patients and has a waiting list of 261. One third of the hospital's service is free to needy patients.

The development of individual nursing care for patients in New York City hospitals is reported by Dr. S. S. Goldwater, Commissioner of Hospitals, to Mayor La Guardia in a report.

To abolish mass treatment required in the past by administrative routine and limited personnel, the city nurses were taught last year to consider each patient as an individual to consider preference for certain foods when possible and where a patient was in need of encouragement, all concerned with his care were instructed to cooperate.

Illnesses and absences among the nurses are found to have increased decidedly despite the eight hour day.

Anticipated effects of the eight hour day on the health of graduate nurses have not been realized, the Commissioner said.

Outstanding improvement in the financial picture of operations of Jamestown General Hospital is reflected in a report of the first full six-month period of administration of the institution by the new superintendent, Miss Dorothy Dotterweich.

Total cost of the operation of the hospital during the six months was \$82,798.69. Cash revenues received during the same period totalled \$74,800.87. City records show that the hospital has never before, in any six month period, shown cash revenues so nearly equal to disbursements for the same period.

Tremendous improvement in the collection of hospital accounts is reported. Collections during the first six months this year were approximately \$24,000 ahead of collections during the same period a year ago.

The modern hospital has become more than just a place where patients are provided bed board nursing and medical care. We read in the annual report of the Pennsylvania Hospital of Philadelphia. It is a place where special facilities and personnel are so organized as to provide the physician regardless of his specialty every means possible to aid him in the diagnosis and care of the patient, and in research. It is a place where physicians, nurses, technicians and others, through a carefully prepared and supervised educational program, are trained in the medical, nursing and other health promoting and curative arts. It is a place designed, constructed, furnished, equipped and staffed to such a degree of perfection that it attracts persons from all walks of life during illness or injury. It is the hub about which the wheel of community health service revolves in its endless whirl to extend the span of human life.

The contribution of the modern hospital to American life has been a significant and concrete expression of the teachings of Jesus Christ, says the Annual Report of the Lincoln Hospital, Durham, North Carolina. "This Good Samaritan has not passed by on the other side, but has offered food and drink, and medical care to the sick and the afflicted. In helping the man who has been set upon by thieves and robbers we are helping ourselves, for it is impossible for one part of our community to live in plenty and in health while the other part lives in privation and in disease. We know that the deadly disease germ is no respecter of persons."

Among twenty public bequests in the will of the late Susan Dannat Griffith is that approximating \$843,000 to the Presbyterian Hospital in New York City.

The \$125,904 estate of the late Fanny Bachrach includes \$111,957 to three public beneficiaries of which one-third goes to the Hospital for Joint Diseases in New York City.

The Eastern Long Island Hospital has purchased a new modern-equipped ambulance to replace the antiquated ten year-old ambulance formerly in use.

The American Bureau for Medical Aid to China, Inc., has made known an urgent appeal from the Chinese Red Cross for hospital supplies, which are desperately needed in the treatment of air raid victims scattered all over free China. Doctors and hospital workers do not need to be told, says Dr. Co Tui of the Bureau, how essential adequate equipment is for the efficient and sanitary treatment of hospital patients. They will therefore appreciate the seriousness of the situation in 360 base hospitals, which have, for example, only one set of linen per bed, and a great shortage of blankets, thermometers, bed pans, and other commonplace hospital articles. These hospitals also need supplementation of their surgical apparatus.

Dr. Co Tui emphasizes that equipment discarded as obsolete in American hospitals can readily be used in China, and requests doctors and hospital superintendents to comb their supplies for linen, blankets, instruments, etc., which can be passed on to China.

Hospitals which have equipment to donate should notify the American Bureau for Medical Aid to China, Inc., 57 William Street, New York City, which will provide for its immediate transportation to China.

Walter A. Tyler, president of the L. A. Dreyfus Company, was re-elected president of the Staten Island Hospital board of trustees at the annual meeting in June.

Ferdinand C. Townsend, a former president, was elected honorary president, and Medad L. Stone was named honorary vice-president.

Kenosha, Wisconsin, has a traveling truck, and everywhere disaster goes, this truck, like Mary's Little Lamb, tags too. It combines fire-fighting, hospital, and emergency equipment, all in one mobile unit, and is held ready for any major calamity within a 100-mile radius, according to *Hospital Topics and Buyer*.

Auxiliary lighting for hospitals, in the event of a powerhouse failure, is only one of the services which this versatile unit supplies, in addition to carrying equipment for automobile, water, or fire accidents. It was set up by the Red Cross first-aid corps of the Scouts, and within the community 500 persons stand ready to administer trained first-aid in answer to emergency calls.

The New York State Insurance Department authorized a financial statement of the condition on June 30 of the Associated Hospital Service of New York that was issued to the press on July 24. This showed a surplus to subscribers of \$508,043. With an enrollment of over 1,300,000 subscribers, its cooperating hospitals receive in excess of \$7,000,000 yearly.

## Improvements

A proposal for a \$250,000 hospital to be constructed in Valley Stream and designed to serve at least eight surrounding villages is being discussed by organizations and civic leaders.

The Jackson Heights Kiwanis Club's gift to the paralysis victims of Queens—a therapeutic pool—was dedicated on July 19 at a luncheon in the Jackson Heights Club, attended by some 150 business, civic, religious, and political leaders of the community and borough.

The pool has been installed at Physicians Hospital, which will maintain it. It is estimated that at least 700 children in Queens and Nassau are in need of such treatment to restore joints crippled by paralysis. The pool is of a new design which allows much smaller installations than the pretentious layouts which have been necessary heretofore. It allows for warm baths, massage and diathermic treatments within small space.

Acting on a suggestion of Odell Sanitarium board of managers, the Orange County Planning Board is ready to embark upon a period of educating "the people toward the necessity of a new sanitarium," according to the Newburgh newspapers.

Nyack Hospital has added an up-to-date Cadillac ambulance.

A special committee of the A. Barton Hepburn Hospital board of directors at Ogdensburg has voted to purchase a General Electric x-ray machine costing approximately \$20,000 to replace equipment which has been in use at the hospital many years. To accommodate the machine, a new x-ray room will be provided on the first floor of the institution.

Ground was broken on July 17 for the new \$400,000 Mercy Hospital at Hempstead. Supreme Court Justice Thomas J. Cuff revealed that the four-month active drive for funds had netted \$235,000 from 8,700 contributors, and that "Protestant, Jew, Catholic, and those of no religion helped and gave freely of what they had."

A further wing may be built on the new addition to the New Rochelle Hospital, according to the local papers.

# Medicolegal

LORENZ J. BROSNAN ESQ.

Counsel Medical Society of the State of New York

## Case Ignited by Cautery

A PHYSICIAN engaged in the general practice of medicine was consulted by a man with complaints of a boil on the buttocks. Examination showed the presence of a furuncle about one inch to the left of the anus and a slight laceration of the skin nearby which apparently had been caused by adhesive tape which the patient had applied.

The doctor undertook to freeze the furuncle with ethyl chloride and then proceeded to open the boil with an electric cautery. As this procedure was being carried out a flame suddenly appeared which in the opinion of the physician was due to the igniting of gas from the ethyl chloride. The doctor extinguished the flame with his hands immediately and there was no burn of any sort except that the hair around the area was singed.

A malpractice action was brought against the physician in which the plaintiff in his complaint charged that he was severely burned that he sustained various other injuries of a serious nature.

The case came on for trial and the plaintiff produced medical witnesses who testified that as a result of the incident that happened the plaintiff had suffered from a heart ailment and a psychoneurosis.

Prior to the trial a physical examination of the plaintiff had been made by defendant's expert witness who found the man in good health and who testified upon the trial as to his findings.

The issues in the case were submitted to the jury and a verdict was returned in favor of the defendant thereby exonerating him of the charges of malpractice.

## Operation upon Breasts

A YOUNG unmarried woman consulted a physician who engaged in the practice of general surgery with complaints of a painful enlarged condition of both breasts.

Operation was agreed upon and the doctor performed an operation upon both of her breasts removing a greater part of each of them. The breasts were reduced in size by excising their redundant tissue, fixing the breasts to the pectoral fascia, and suturing the overlying skin in place.

The patient's postoperative course at the hospital was uneventful, but she left before discharge by the surgeon. When she returned to him for examination about three months after this he found that she had an infection in one of the wounds following strenuous exertion on her part after she had removed the bandages. She was again hospitalized and the breast was reconstructed with good results.

A malpractice action was brought against the surgeon in which the patient charged that defendant had improperly cared for her so as to cause keloidal scars to form over the area of the incisions. She further claimed that her breasts had become of unequal size, were improperly shaped and that one of them was without a nipple. Since plaintiff was a nonresident an order was obtained directing her to furnish security covering the costs of the action and when her attorney failed to post such security and to take any other steps to bring the case on for trial a motion was made on behalf of the defendant to dismiss the action by reason of plaintiff's failure to comply with the order directing her to furnish security for costs and by reason of her failure to otherwise prosecute the action.

Said motion resulted in a discontinuance of the action against the doctor.

## Expert Testimony—Osteopathic Physician as Witness

A CASE recently tried and disposed of upon appeal dealt with the problem as to the extent to which an osteopathic physician could testify in a malpractice action against a fully licensed physician and surgeon.

The action was brought by one F against Dr. A to recover damages by reason of alleged malpractice in the care and treatment of a condition claimed to be a fractured skull. According to the testimony introduced upon the trial in behalf of the plaintiff while working in a ditch he had been struck on the head by a falling tile and was promptly taken to the defendant for treatment. He was examined and no objective evidence of injury found but he was given some medicine and told to go home and not return to work unless he felt better. The plaintiff claimed symptoms of dizziness, nausea, and pain. The

day following the injury F again consulted Dr. A, and was given some liniment and instructions to keep from work for a short time. Later on after F had returned to work, he returned to Dr. A with more complaints on two occasions when his blood pressure was found above normal and finally his head was x rayed and he was hospitalized for some two weeks during which time defendant made two spinal taps. The claim of plaintiff included alleged permanent injuries, which it was charged were sustained as a result of defendant's failure to promptly x ray plaintiff's skull and his failure to properly diagnose the injury and to treat it by the usual and recognized methods, as he claimed by immobilization in bed with ice packs at the head and heat at the feet. He charged also that he sustained a brain hemorrhage for which defendant did not promptly and properly prescribe.

Defendant in his pleadings admitted his

\* *Portbofer v. Arnold* 21 N. E. 2nd 889

employment and contended that the treatment afforded plaintiff conformed to the standard in the community where he was located. The physician denied that he was in any way negligent.

Upon the trial the plaintiff offered as expert witnesses two doctors of the osteopathic school. Each of them testified that he would have followed a different course of treatment if he had been called to treat the patient, and described such treatment.

At the end of the testimony the defendant moved that the expert testimony given by the osteopaths be withdrawn from the consideration of the jury. The motion was granted by the trial court, as it did not appear that the osteopaths had any knowledge at all as to the standards of skill, care, and diligence employed by physicians and surgeons of the school to which defendant belonged. Such ruling having been made, the trial court proceeded to grant defendant's motion for a directed verdict.

From the judgment in favor of the defendant physician, the plaintiff appealed, and upon the appeal his principal contention was that the evidence of the osteopathic physicians should have been allowed to go to the jury for its consideration.

The Appellate Court, however, affirmed the judgment of the lower Court, and said in its opinion:

"In malpractice actions it is a well-recognized rule, and one which has the approval of this court, that the care, skill and diligence exercised by the defendant is to be judged by that standard of ordinary care which ordinarily is exercised by

physicians and surgeons of the same school of medicine in the same general neighborhood, or in a similar locality.

"It must be remembered that the injury which the plaintiff claims he sustained was of such a nature as not to be recognized and understood by lay witnesses, but was one which required a high degree of expertness in the diagnosis and treatment thereof.

"From our reading of the record in this case we find no evidence from which the jury could determine the standard of care, skill and diligence by which the defendant's conduct was to be judged. On this subject there was accordingly a failure of proof. Further, we find no credible evidence that the plaintiff sustained a fractured skull.

"The absence of such evidence justified the trial court in directing a verdict for the defendant. We find no error in the action of the trial court in withdrawing from the consideration of the jury the expert testimony of the osteopathic physicians."

The Court also quoted with approval from a well-known legal treatise as follows:

"In an action for malpractice a physician or surgeon is entitled to have his treatment of his patient tested by the rules and principles of the school of medicine to which he belongs, and not by those of some other school, because a person professing to follow one system or school of medicine cannot be expected by his employer to practice any other, and if he performs the treatment with ordinary skill and care in accordance with his system, he is not answerable for bad results."

## TIMIDITY ABOUT BLOOD TRANSFUSION

A rather disappointing response, it seems, has been made to the appeal to the British public to volunteer for blood transfusions in case of war. The call has been widely broadcast in the press and on the air, "but certainly the numbers coming forward have not fulfilled expectations," reports the *British Medical Journal*. Many people, despite all reassurances, have felt there was some danger attached even to the tiny prick required to withdraw one or two drops of blood for testing, although it is really no more dangerous than drawing blood for a blood count, a procedure that never seems to arouse anxiety in anyone. It must also be obvious that if war should come every man, woman, and child in the country are potential casualties and may themselves need a transfusion. They should therefore know their own blood group, as they may be recipients even if they do not want to be donors.

There is no evidence that the occasional withdrawal of blood from healthy individuals is in any way harmful. In the London Transfusion Service many donors have given fifty transfusions, while on the Continent, where donors are paid, there are persons in good health who have given as many as 1,000 transfusions. That this is still true under war-time conditions is borne

out by experience in Spain, where in Barcelona alone 14,000 people, principally women, gave blood regularly.

Some volunteers have been anxious about the possible transference of syphilis. This risk is minimized by the use of the Wassermann reaction or one of its equivalents. In any event the risk here is borne by the recipient and not by the donor.

It is probable that the risk of transferring the malaria parasite is greater in practice than that of transferring the spirochete. In the present scheme this has been obviated by asking volunteers on the form they are asked to fill in whether they have had any serious illness. Those that record malaria are of course excluded. Medical officers who have been enrolling volunteers believe that a great part of the success of such a national scheme depends on the collaboration of general practitioners throughout the country, who can reassure their patients when asked about some of the points that are apparently causing difficulty. They can also encourage those healthy members of the community with whom they come in contact to know their own group, just as they advise them to be vaccinated. Membership of a transfusion scheme can, indeed, be regarded as a sort of insurance policy.

# Across the Desk

## On Trotting Out the Old Horse and Buggy

IT SEEMS to be an unending source of surprise to the young newspaper writers that the doctors of fifty years ago used horses and buggies. Practically every newspaper story of a doctor's fifty years of practice and every obituary of a venerable practitioner remarks that in his early years he drove a horse and buggy. You can almost see the young high school chap who hopes to be another Horace Greeley (or maybe William R. Hearst) chewing his pencil and trying to think of something striking or strange in those old days, when suddenly it bursts upon his consciousness that the old doctor drove a horse and buggy!

It is impossible to fool these bright young men. The doctor undoubtedly did drive a horse and buggy. Any attempt to deny or disguise the fact is useless. He did not ride in a howdah on the back of an elephant or on a prayer rug between the humps of a Bactrian camel. He did not mount an aparejo on a cayuse, loll in a sedan chair or spin about in a rickshaw. To put it briefly and end all dispute about it, the doctor of the eighties and nineties did not use a carriage. A kittereen a shay a tonga a gharry a drag a calash, a kibitzka, a sulky a diligence a fly a droshky a shandrydan, a palanquin a jampian a doolie, or anything of that sort. He just drove a horse and buggy. It is smart of these clever newspaper fellows to be awake and alert to this fact. Otherwise maybe the readers might think the doctor drove a zebra kangaroo koodoo or hippopotamus.

### Is It News, Boys, Is It News?

A vital thing for every young newspaper man is to know what is news, and that is a subject that comes up whenever news writers get together. It may be presumptuous for a mere medical magazine scribe to utter a syllable of criticism of the brilliant young minds of the daily press, but really now boys, is it news to anybody that the doctor of pre-motorcar days drove a four legged animal known as a horse? And if it isn't news, if it is just a bromide, like saying the doctor wore shoes or a hat why play it up in every story as if it were extraordinary?

Why too try to make it something heroic or pathetic? If the journalist is a good color writer he has the doctor driving the horse and buggy through 'blinding rainstorms, and in the winter the doctor waded through the snowdrifts to reach his patients. All true of course, but so did the milkman, so did the book agent, so did the bill collector. The rain and the snow fell alike on the just and the unjust, on the heroic old doctor and the heroic old postman. Everybody knows it, and as news its value is down around zero. Why wouldn't the doctor wade through the snowdrifts? He couldn't dive under them or leap over them or wait for summer to liquidate them. So he waded, others waded and soon there was a good clear path. So cut out the heroics.

### Here Is a Real News Story

So cut out the bromides—and put in the real news. Every doctor who has practiced fifty years or forty or thirty has a great news story in him and one that people would like to read. Far far greater changes have occurred in the medical world in the last few decades than the change from horse and buggy to motor car. And these changes affect every home every family every life. Many a reader of your newspaper young man is alive and well today because of the new ways in medicine and your story of the old doctor's splendid life is missing something big if it omits them and puts in only the horse and buggy and snowdrifts.

If you want a human interest story for your magazine section make a date with that fine old physician down the street, who seems mysteriously able to hold his practice despite his advancing years. You may be sure that he has kept up with the swift advance of medical science. Get from him the story of how the various common illnesses were treated years ago and how they are handled now. You will get some thrilling accounts of bedside battles with death, and you will have a motion picture of the onward march of medicine that beats anything on the screen. Too you will have something to file away for the time when the good old doctor is the guest of honor at a dinner of his county medical society celebrating half a century of practice, or the time when he goes to his reward and you will not have to fall back on the pitiable wheeze that he drove a horse and buggy.

### The Doctor's Thoughts, Then and Now

What was in the doctor's mind as he rode along behind the clop-clop-clop or the clippety clippety-clip of his bay mare? More likely it was clippety-clip for the doctors used to hold the reins over some pretty high steppers. Well the horse usually knew his way around, and the physician had time to think over the puzzling features of the case he had just visited and of the next one on the list.

But not now! Now the motorist must keep up a pace of from forty to sixty to avoid the cars trying to climb up his rear bumper to say nothing of the grinning and carefree boys and girls who weave in and out of traffic, passing now left now right, at any speed over seventy. Grocers and butchers' vans pop out full speed from driveways and side streets, kids chase elusive balls almost under the wheels, and the doctor needs all his wits to keep from becoming a hospital case himself. Not long ago a doctor writing to one of the medical journals, said that he once tried to drive slowly so that he could put his mind on his difficult cases, but he only drew a fire of scowls, howls and raucous honks from other drivers. So now? he said 'I just drive like hell like all the rest.'

The doctor's horse used to know the sick list as well as his master did, and turned in at the



right gates without a twitch of the rein. This habit was once used, so the story goes, by a doctor selling his "practice," largely nonexistent. As he took a prospective buyer around town, the horse tried to turn in at nearly every house. "That is one of my patients," the doctor said, "but he happens to be feeling better just now." In fact, this seems to be an unusually healthy season, and most of my patients are up and about this week." The buyer was impressed by the horse's undemable evidence and bought the practice, only to learn that his predecessor had traded horses for the day with the milkman. No affidavit, however, goes with this story.

A more credible one appeared in an upstate paper only two or three weeks ago. A well-known physician up in those parts, it seems, is a horse-lover, and has a good stable of spirited mounts. On a fine day he often leaves his car in his garage, puts a leg across the back of a thoroughbred, and makes his round of sick calls a day of pleasure and healthful exercise. In the winter, he says, the snowdrifts have no terrors for his pets, and they romp along easily where the wheels of an automobile would only churn up the snow.

### Something Fine is Disappearing

Nobody, of course, wants the old horse-and-buggy days back. But at the same time no automobile can ever win the love that went so freely and fully to Ginger and Tony and Daisy and Fanny. No motorcar will ever nuzzle around our pockets for apples or sugar, or bring us safely home if we fall asleep on the way, after a night of anxiety at the bedside of a patient desperately ill. Something fine is disappearing from our civilization. Go it must, displaced by a machine, but it is a loss, for all that. A whole vocabulary of horsemanship is slipping out of our language. Few of our young medicos of today could even harness a horse. They can drive a car, but the older men can do both, and sometimes it may be very useful in an emergency, when the motor balks or the gas is gone.

Nothing is said in Holy Writ about any horses or dogs in the Better Land, but to some folks it just won't be heaven without them. Which place, however, will have the automobiles? An old story tells of a preacher who shouted "Hell is full of automobiles, champagne, and chorus girls!" And a young man in a rear pew muttered "Oh death, where is thy sting!"

W S W

### A HOST IN HIMSELF

An obscure surgeon once was called to attend a patient so gravely ill that there was no time to summon assistance, and was asked if he did not hesitate to operate alone. He replied:

*"No doctor is ever ALONE*

*"Everything known about medicine is the product of RESEARCH*

*'A host of men have devoted their lives to every KNOWN FACT in medical science*

*"So there is a vast company of helpers to assist me in what I do. How can I be ALONE?"*

—New York American

### "HIMLOCK"

We have learned to give and give and give,  
We doctors' wives, self-trained to live  
Without the men who pledged to serve  
All human kind and life preserve  
We have gone without association  
While Phone and we stayed on "location,"  
We reared the children, ran the home,  
We ate our dinners all alone—  
And did it all—because we thought  
The whole world knew the good they wrought  
To compensate—They get indicted!  
Love's labor lost!!! Are we excited???

—Mrs. I. B. Bitter, in J A M A

### NEW CENTER FOR PUBLIC HEALTH STUDY

Practical training for medical students in public health service as a special field of education will be available on a large scale with the opening of the new laboratories and classrooms of the DeLamar Institute of Public Health of Columbia University, it is announced by Dean Willard C. Rappleye, dean of the College of Physicians and Surgeons of Columbia University.

The new quarters will occupy the top three

floors of the seven-story city health and teaching center nearing completion at the Presbyterian-Columbia Medical Center, 168th Street and Broadway. The building is being erected through an agreement among Presbyterian Hospital, Columbia, and the department of health, and will serve the Washington Heights and Riverside districts of Manhattan. The laboratories and courses will be open to doctors, dentists, nurses, and graduate students.

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## *Editorial*

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### Is This Justice?

The press release issued by the Department of Justice after the defeat of its antitrust suit against the A M A. in the Federal District Court is a departure from all accepted traditions of American jurisprudence. In substance, it warns physicians not to commit certain acts of which it disapproves—even though the Federal District Court has just ruled that the antitrust laws are not applicable to medical practice. It supports this warning with a threat not merely to carry the current case to the Supreme Court but to bring another indictment against the profession in different technical form.

Following other overt acts, this impertinent admonition makes it clear that the chief interest of the Department of Justice, in its action against the A.M.A., is not to enforce the antitrust laws but to break the profession's resistance to domination by Washington. As long as Justice James M. Proctor's ruling stands unreversed by the higher courts, the Federal Government—including the Department of Justice—has no right to dictate medical policy or to try to impose its views on the medical profession.

The whole history of the suit against the A M A. is one of bold-faced attempts to discredit American medicine in the public eye. The charge that the A.M.A., which represents practically the entire practicing profession, is guilty of "monopoly" as envisaged in the antitrust laws is on its face absurd. Once having made this paradoxical accusation, however, the Department of Justice proceeded to try its case in the press and over the radio before it ever reached the courtroom. Without regard for legal tradition or ordinary fair play, it conducted a systematic campaign of vilification against the medical profession before lay groups. Even its indictment was couched in terms of "highly colored, argumentative discourse" (to quote the presiding judge) and abounded "in uncertain statements."

The improper, coercive attitude of the Department of Justice in

this case is a matter of concern to the entire country When a law-enforcement agency attempts to enforce its interpretation rather than the accepted meaning of a law, our whole system of civil liberties is jeopardized The policeman is an indispensable element of communal life, but his duties must be kept distinct from those of legislator and judge In this particular case the Department of Justice has overstepped its authority, and it should be rebuked for offensive, arrogant conduct

### Raw Milk Dangerous

Milk has been in the headlines fairly often in the past month—milk strike, milk battles, milk truce A very important fact connected with the production and distribution of milk has not been mentioned, however, though it directly affects the health of the people of this state

In the past year, according to the New York State Department of Health, there has been almost no diminution in outbreaks of milk-borne disease Invariably these outbreaks can be traced to raw milk

A farmer's sons have septic sore throat They continue to milk the cows, and the milk is sold raw Within a few weeks 100 cases of severe sore throat occur among their customers This is one true story among many

The continued sale of raw milk is due primarily to economic causes Many small dairymen have no pasteurizing equipment and cannot afford to install any They have a heavy investment in their herds—often fine, healthy stock—and their milk route is their livelihood If their cows have passed inspection and their stables are clean, they see no reason why they should not be permitted to sell raw milk

Frequently, the economic situation in a small community is complicated by the presence of one dairy with a pasteurizing plant that seeks to exploit the small independent farmers The dairy pays such a low price for milk for pasteurization that the farmer prefers to hold on to his raw-milk route

As the State Health Department admits, continued progress in the suppression of milk-borne disease depends on increased pasteurization of milk in small communities Farmers must be taught the dangers of raw milk, even from healthy cows The State Grange and other farmers' associations should be enlisted to this end Above all, however, a means must be found to make pasteurizing facilities available to the small farmer without sacrifice of his already slight margin of profit

## Dr Harold Rypins

In Dr Harold Rypins, medicine had a staunch friend and defender. The sixteen years in which he served as Secretary of the New York State Board of Medical Examiners witnessed important changes in governmental regulation of medical education and practice. In all these changes he played a praiseworthy part, upholding necessary scientific and ethical standards and combating undesirable practices by both licensed and unlicensed quacks.

With the late Dr Augustus M. Downing, then Commissioner of Medical Education, Dr Rypins helped to rewrite the State Medical Practice Act in 1923. He was first Secretary of the Medical Grievance Committee set up under the amended law, and his knowledge of medical laws and practical experience in their enforcement contributed greatly to the Committee's instantaneous success.

Dr Rypins' pre-eminence in his special field was widely recognized. He was a former president of the Federation of State Medical Boards of the United States and served on the National Board of Medical Examiners for several years. His untimely death robs medicine of a faithful servant, but his imprint on the medical laws and enforcement methods of this state will long remain.

## The Academy Fortnight

The Twelfth Graduate Fortnight sponsored by the New York Academy of Medicine will take place this year, from October 23 to November 3. The subject to be dealt with is "The Endocrine Glands and Their Disorders." A perusal of the program impresses one with the thoroughness with which this phase of medicine will be reviewed. Besides the clinical presentation of material at the New York hospitals, the Medical Society of the County of New York, the Society of Experimental Biology and Medicine, and the New York Pathological Society have collaborated with the Academy in arranging several of the evening programs.

Four mornings will be devoted to round-table conferences, the leaders of which are outstanding authorities in this field. In addition, the scientific exhibit, complete in every detail, will consist of fifteen sections covering all of endocrinology per se and, in addition, its significance in connection with certain medical and surgical specialties. Judging by the enthusiasm which greeted the previous Academy Fortnights, this one promises to excel all others and since attendance is limited to registrants only, those wishing to attend must secure a ticket of registration. These will be mailed by the New York Academy of Medicine upon the payment of five dollars. The *New York State Journal of Medicine* extends its felicitations.

tations and thanks to the Academy for affording the profession this outstanding opportunity for postgraduate study

### Sulfapyridine in Pneumonias

In our August 15 issue we carried an editorial concerning the treatment of pneumonia with sulfapyridine. In writing to our mixed audience—consisting of general practitioners as well as specialists in the treatment of pneumonia—we try to take as practical a position as is possible, and hence, having observed the effects of sulfapyridine in pneumonia, we commended its prompt use. In so doing, perhaps we gave the impression that we thought typing was unnecessary, and that the serum treatment of pneumonia was outmoded, and also that blood cultures were no longer needed.

Nothing could be further from our minds. We still believe that serum therapy has a definite place, that typing, whenever it can be done, is very necessary, and that blood cultures should be used wherever it is both feasible and possible. They all have their uses.

There have been academic questions involved as well as practical questions. In the Revised Pamphlet, Circular C.D. 20 of the New York State Department of Health, entitled *Clinical Aspects of Pneumococcus Pneumonia*, sponsored by the Advisory Committee on Pneumonia Control of the New York State Department of Health, we find: "It is essential to obtain suitable material for typing before chemotherapy (sulfanilamide or sulfapyridine) is started, since these drugs are said to alter the pneumococcus so that typing may be very difficult, if not impossible."

This is the basis of our belief that typing should be done before chemotherapy is employed.

Authorities are somewhat at variance. Without quoting, and in substantiation of our position, we find that sulfapyridine does not actually interfere with typing to a sufficient extent so that its administration need be delayed. That does not say that typing should not be done. It must not be forgotten, from the practical standpoint, that a combination of sulfapyridine and serum therapy together may conceivably achieve excellent results. Certainly, the typing makes serum therapy available where contraindications exist for either the preliminary administration or the continued use of sulfapyridine.

Clinical evidence is at hand that there are certain cases where serum treatment brings a cure and sulfapyridine does not.

Not enough time has actually elapsed for a final evaluation of the sulfapyridine treatment. We are again writing on this topic because we do not want to be misunderstood as advocating chemotherapy as being more advantageous than serum therapy. In fact,

our editorial advocated no therapy, we commented on sulfapyridine and threw out a practical hint for practicing physicians. Officially, we are in entire accord with the efforts of the Advisory Committee for Pneumonia Control of the New York State Department of Health and would advocate nothing contrary to what they, in their considered judgment, recommend. We are glad to find that our recommendation for the primary use of sulfapyridine does not actually inhibit typing. We take it that the practitioners at large understand the need of typing and blood cultures.

### Prevention of Static Spark

The administration of cyclopropane, ethylene, and other anesthetic gases is always attended with the risk of explosion initiated by static spark or faulty electrical equipment in the operating room. Despite this hazard, these explosive anesthetics are extensively used because their value is so great that they cannot be superseded entirely by nonexplosive forms. The relative incidence of explosions is low,<sup>1</sup> but it is of great importance to eliminate them entirely.

Woodbridge, Horton, and Connell<sup>2</sup> suggest a means of preventing the ignition of anesthetic gases by static sparks. Under the usual conditions of administering gases "no mixture of explosive concentration is likely to exist in the operating room outside a region of about a foot in radius surrounding any gas leak." These gas leaks occur most commonly between the mask and the face, the escape valve, and the breathing tubes. The source of a static spark in this area can be the anesthetist, woolen blankets, or metal intercoupling. They found, therefore, that if the patient, the gas machine, the anesthetist, and the operating table were electrically intercoupled with connections of high resistance, sparks could not occur between them. Thus, the majority of dangerous electrostatic potentials are eliminated. Where the floor of the operating room is a conductor, it should be coupled in. In this manner additional protection is afforded against spark by automatically joining the other persons in the room to the intercoupled group. The connections should be made before the anesthesia is begun and should remain until the explosive gas has been flushed out of the patient and the machine.

Other precautions against static spark such as maintenance of a high humidity, the wetting of all rubber parts with calcium chloride, and the discontinuance of wool blankets and rubber-soled shoes are additional factors for safety. Protection against other sources

<sup>1</sup> Tyler, E. A. J.A.M.A. 113: 744 (Aug. 26) 1939.

<sup>2</sup> Woodbridge, P. D., Horton, J. W. and Connell, K. J.A.M.A. 113: 740 (Aug. 26) 1939.

of ignition is likewise essential, and, as Luckhardt<sup>1</sup> suggests, the entire problem should be investigated and solved by physicists, biochemists, and anesthetists working together

<sup>1</sup> Luckhardt, A. B. J. A. M. A. 113 744 (Aug 26) 1939

### Institute on Diet and Nutrition

**A**RRANGEMENTS are nearing completion for the Institute on Diet and Nutrition, which will be sponsored by the Medical Society of the State of New York through its Council Committee on Public Health and Education with the cooperation of the State Department of Health, the College of Medicine and the College of Home Economics of Syracuse University, and the New York Dietetic Association. The assignments of physicians to the different subjects are as follows

GENERAL CONSIDERATION OF DIET Dr A. F. R. Andresen	DIET IN METABOLISM, II—(OBESITY AND UNDERNUTRITION) Dr William A. Groat
DIET IN PREGNANCY AND LACTATION Dr Edward C. Hughes	DIET IN DISEASES OF THE GASTROINTESTINAL TRACT Dr A. H. Aaron
DIET IN INFANCY AND CHILDHOOD Dr Henry L. K. Shaw	DIET IN RENAL DISEASES Dr William S. McCann
DIET IN DEFICIENCY DISEASES Dr Thomas T. Mackie	DIET IN RELATION TO ALLERGY Dr Robert A. Cooke
DIET IN CARDIAC DISEASES AND ARTHRITIS Dr Russell L. Cecil	DIET IN RELATION TO SURGERY Dr Samuel Standard
DIET IN METABOLISM, I—(DIABETES) Dr Charles B. F. Gibbs	THE ENERGY FACTOR IN NUTRITION Dr John R. Murlin

The Institute will be held in the new building of the Medical College of Syracuse University on the four Wednesdays during October, taking up three subjects on each date, carrying through the full day. A physician and a dietitian will speak on each topic, their lectures supplementing each other.

Practical demonstrations will be given when it is felt that these will be helpful, especially in the instruction given by the dietitians.

Ample opportunity will be provided for submitting questions to be answered by the speakers.

Applications for the Institute should be sent in as soon as possible, as it will be necessary to limit the number registered for the course. Apply to

DR THOMAS P. FARMER, *Chairman*  
Council Committee on Public Health and Education  
Medical Society of the State of New York  
206 Sedgwick Drive  
Syracuse, New York

# THE TREATMENT OF TYPES V, VII, AND VIII PNEUMOCOCCUS PNEUMONIA WITH RABBIT ANTIPNEUMOCOCCUS SERUM

ELMER H. LOUGHLIN, M D, RICHARD H. BENNETT, M D, and SAMUEL H. SPITZ M D, Brooklyn, New York

(From the Department of Internal Medicine Long Island College of Medicine Brooklyn, New York)

**R**ABBIT antipneumococcus serum was introduced in 1937 as a therapeutic agent in the specific treatment of lobar pneumonia by Horsfall, Goodner, MacLeod, and Harris<sup>1</sup>. In February, 1938, Horsfall, Goodner, and MacLeod reported 67 cases of lobar pneumonia due to nine different types of pneumococci and treated with homologous rabbit antipneumococcus serum.<sup>2</sup> Included in this series were 14 cases of pneumonia due to Types V, VII, and VIII pneumococci. There were no deaths among these 14 patients.

In August, 1938, we reported 69 cases of pneumonia due to Types I, II, V, VII, VIII, and XIV pneumococci, treated with the homologous unconcentrated and refined rabbit antipneumococcus serum.<sup>3</sup> In this series there were 6 patients with Type V pneumonia, 9 with Type VII pneumonia, and 6 with Type VIII pneumonia. There were no deaths in this group of 21 cases.

It is the purpose of this paper to present the results obtained in a group of 125 cases of pneumonia due to Types V, VII, and VIII pneumococci which have been treated with type specific, unconcentrated, and refined rabbit antipneumococcus serum.

## Methods

**Antipneumococcus Sera**—The rabbit antipneumococcus sera used in the treatment of these cases were unconcentrated but refined, having been prepared according to the methods of Goodner, Horsfall, and Dubos<sup>4</sup>. The sera were supplied by the Lilly Research Laboratories, Indiana polls.

**Cases**—From December 1937, to April,

1939, 125 patients with pneumonia due to Types V, VII, and VIII pneumococci were studied. These patients were from the pneumonia service of the Long Island College Hospital, the medical services of Kings County Hospital, and the Norwegian Hospital, Brooklyn. The majority of these patients were of the poorer classes and many had had no medical treatment prior to admission. Because of the nonselection of patients for treatment, 1 patient with a terminal pneumonic process complicating cerebral hemorrhage was treated with serum merely as an auxiliary measure. This patient was unconscious when treatment was begun and died within five hours after starting treatment. Another patient suffering from subacute bacterial endocarditis complicated by pneumonia, died from cerebral embolism. A third patient admitted with an acute bacterial endocarditis was treated with serum. These patients were excluded from the series. Two other patients who were moribund on admission and who died within three and four hours, respectively, after beginning serum therapy were likewise omitted from the series.

**Typing**—Typing of sputum specimens was done by the Neufeld method and confirmed by mouse inoculation. Blood cultures were taken after the patient's admission to the service and repeated as often as necessary, usually at intervals of twenty four hours during the febrile period.

**Examinations**—A history was taken, a physical examination was made, and the latter was confirmed in each case by x ray examination of the chest. Routine blood



counts, urinalyses, and, when indicated, chemical examination of the blood were made. The Francis test, which consisted of injecting intradermally 0.1 cc of a 1:10,000 dilution of pneumococcus polysaccharide (specific soluble substance), was done in a number of patients prior to and during serum therapy.

### Administration of Rabbit Antipneumococcus Serum

*Sensitivity Tests*—Before the administration of rabbit antipneumococcus serum was begun, the patient was questioned as to familial and personal allergic conditions. During the physical examination, evidence of allergy was carefully sought. When the history proved negative, sensitivity tests were then made.

*Intravenous*—One-tenth cc of rabbit antipneumococcus serum, which was to be used in treating the patient, was diluted to 5 cc with physiologic solution of sodium chloride and injected intravenously. The blood pressure and heart rate were taken prior to, and five minutes after, the injection of the test dose. When there was no alteration of blood pressure or cardiac rate, serum administration was begun. If there was a fall of 20 mm Hg of systolic blood pressure, or a rise in cardiac rate of 20 beats per minute, the patient was considered sensitive, and rabbit antipneumococcus serum was not administered. None of the patients in this group revealed sensitivity by this method.

*Conjunctival Test*—One-tenth cc of a 1:10 dilution of rabbit serum was placed in the conjunctival sac. Sensitivity of the patient to rabbit serum was manifested by itching, lacrimation, and congestion. None of the patients in this group revealed a positive reaction.

*Technic of Serum Administration*—A syringe, containing an epinephrine hydrochloride solution (1:1,000) was always available on the bedside table. The serum was warmed in the hands or was allowed to stand until it reached room temperature. Heat was not applied to it.

From 10 to 15 gr of acetylsalicylic acid (0.6 to 1 Gm) was given by mouth just

prior to the administration of each dose of serum.

A sphygmomanometer cuff was placed on the arm opposite to the one in which the serum was to be given. The serum was administered with an ordinary intravenous drip infusion set. It was never diluted with either dextrose or salt solution. During the administration, the pulse rate was observed for significant increase, and the patient closely watched for manifestations of anaphylactic or anaphylactoid symptoms. In the event of these untoward symptoms, the flow of serum would be temporarily discontinued and a blood pressure reading made. If there had been no fall in blood pressure, the administration of the serum would have been permitted to continue. If there had been a fall in blood pressure, especially of more than 20 mm Hg, one or two minims of 1:1,000 epinephrine hydrochloride solution would have been administered intravenously. After recovery of the blood pressure to its previous level, the serum injection would have been continued slowly and cautiously. As a matter of fact, such a fall in blood pressure did not occur in any of the cases in this series.

*Dosage of Rabbit Antipneumococcus Serum*—In August, 1938, we reported 69 patients, all of whom were treated with a predetermined dose of rabbit antipneumococcus serum, and of these, 40 were successfully treated with a single dose. To all the patients reported in the present paper, a projected dose of rabbit antipneumococcus serum was administered. This projected dose may be defined as the quantity of serum, measured in Felton units, that we have found adequate in the treatment of lobar pneumonia.

In Types V and VIII pneumonia, 160,000 units was given when the patient was less than 40 years of age, was ill less than sixty hours, had involvement of no more than one lobe, and had neither complications nor bacteriemia. In Type VII pneumonia, 200,000 units was given. However, in January, February, March, and April, because of the high incidence of respiratory infections and the increased

TABLE 1.—TYPE V PNEUMONIA TREATED WITH TYPE V RABBIT ANTIPNEUMOCOCCUS SERUM\*

Case	Sex	Race	Age	Lobes Involved	Bacteremia	Pre-existing Diseases and Complications	WBC $\times 1000$	Neutrophils %	First Serum Inj. after Onset	Units $\times 1000$	No. of Doses	Crisis, Hours after 1st Dose	Serum Sickness	Results
1	M	W	31	RuRlRmLi	+	Auricular Fibrillation	14 6	78	96	300	2	28	0	R
2	M	W	14	RlRm	+		18 6	92	122	120	1	4	+	R
3	M	W	16	Rl	0	Pulmonary Tuberculosis (fibroid)	17 2	72	26	200	1	6	0	R
4	M	W	53	Li	+		12 0	83	70	440	2	28	0	R
5	F	W	23	RlLi	+		25 6	92	170	200	1	6	0	R
6	M	W	54	Li	0		16 6	78	90	200	1	6	+	R
7	F	W	34	Li	+		11 6	80	80	460	2	28	+	R
8	M	W	17	Li	+		17 9	84	60	240	1	11	+	R
9	F	W	33	Li	+		23 5	88	36	160	1	10	0	R
10	M	W	48	RlLi	+		16 7	85	120	500	2	40	0	R
11	M	W	17	Li	0	Purpura Hemorrhagica (Werthof)	32 1	93	120	700	2	32	+	R
						Splenectomy (obsolete)								
12	M	W	57	Rl	0		14 8	86	120	400	1	4	0	R
13	M	N	33	Li	+		18 4	81	96	200	1	4	0	R
14	M	W	40	Ru	+	Hypertension	24 9	95	48	240	1	8	+	R
15	M	W	28	RmRl	+		10 7	78	48	470	2	48	+	R
16	M	W	55	RlLi	0	Atrophic Arthritis Myocardial Insufficiency	26 0	97	192	400	1	4	0	R
17	M	N	22	Rl	0		18 0	74	76	220	1	7	0	R
18	M	W	30	Rm	0		8 5	76	48	200	1	4	0	R
19	M	W	39	Ru	+		23 5	88	168	280	1	16	+	R
20	M	N	23	Lu	0		18 2	82	96	200	1	3	0	R
21	M	W	57	Ru	0		26 0	90	120	260	1	8	0	R
22	M	W	36	Li	+		15 4	80	124	180	1	8	0	R
23	M	W	68	Ru	+		23 4	80	80	220	1	6	0	R
24	M	N	15	RlRm	0		30 3	92	72	280	1	10	0	R
25	M	W	18	Li	0		27 8	92	108	280	1	4	0	R
26	M	N	23	Li	0		16 8	78	30	200	1	12	0	R
27	M	W	32	Rl	0		21 2	41	84	200	1	16	0	R
28	M	W	18	LiLu	+		26 3	90	130	200	1	8	0	R
29	F	W	18	Li	+		22 4	89	36	100	1	3	0	R
30	F	W	37	Rl	0		22 3	80	76	200	1	12	0	R
31	F	W	31	RlRmRu	0		22 3	82	100	400	1	8	0	R
32	M	N	36	Ru	0	Jaundice	23 1	79	80	200	1	12	0	R
33	F	W	36	Rl	+		18 4	70	98	360	1	24	0	R
34	F	N	35	Rl	0	Hypothyroidism Thyroid Crisis	18 0	82	120	540	2			D
35	F	N	38	LiLuRl	0	Anemia (RBC 2 900 000 Hgb. 55%)	18 8	83	150	680	2	24	0	R
36	M	N	16	Li	0		30 5	90	72	200	1	5	0	R
37	F	N	28	RmLi	0	Syphilis	19 2	80	96	400	1	4	0	R
38	F	N	48	Li	0	Pulmonary Tuberculosis (fibroid)	15 4	84	124	240	1	8	0	R
						Fractured Ribs								
39	F	W	36	RmRl	0		24 0	80	96	240	1	24	+	R
40	M	W	46	Ru	0		24 9	96	62	240	1	8	+	R
41	M	W	28	Rl	0		10 7	78	48	460	2	48	+	R

\*Abbreviations in tables are as follows

Sex: M—Male, F—Female

Race: W—White, N—Negro

Lobes: R—Right L—Left u—Upper l—Lower m—Middle

Results: R—Recovered, D—Died.

virulence of the pneumococci, 200,000 units was administered in Types V and VIII pneumonia and 260,000 units in Type VII pneumonia.

In Types V and VIII pneumonia, 200,000 units was given when the patient was over 40 years of age, was ill more than sixty hours, had involvement of more than one lobe, or had complications or bacteremia. In Type VII pneumonia, 300,000 units was given. An additional 60,000 units in Types V and VIII pneumonia, and 100,000 units in Type VII pneumonia was given during January, February, March, and April.

We have noted that when a leukopenia occurs in Type VIII pneumonia, a bacteriemia is always found. This observation has enabled us to determine the projected dose in many of these cases. When a leukopenia was found in a case of Type VIII pneumonia, the patient was considered to have a bacteriemia and was usually treated accordingly.

Subsequent doses were administered usually at intervals of twenty four hours, the amount being determined by the response to the first or previous dose, the clinical condition of the patient, the presence or absence of bacteriemia, and

TABLE 2—TYPE VII PNEUMONIA TREATED WITH TYPE VII RABBIT ANTIPNEUMOCOCCUS SERUM

Case	Sex	Race	Age	Lobes Involved	Bacteriemia	Pre-existing Diseases and Complications	WBC × 1,000	Neutrophils %	First Serum Hrs. after Onset	Units × 1,000	No. of Doses	Crisis Hours after 1st Dose	Serum Sickness	Results
1	M	W	33	RiLi	0		10.4	85	176	580	3	30	+	R
2	M	W	21	Li	0		29.4	82	24	140	1	12	0	R
3	M	W	22	RiLi	+		27.0	89	20	700	3	28	0	R
4	M	W	38	LiLi	+		4.3	78	106	1,080	6	96	+	R
5	M	W	33	Li	+		10.4	77	70	220	1	8	0	R
6	M	W	42	LiLi	+		21.0	76	20	160	1	8	0	R
7	M	N	23	Li	+		22.0	87	24	480	3	23	+	R
8	F	W	12	LiLi	+	Otitis Media	15.0	80	192	400	2	24	0	R
9	M	W	39	RiRi	+		8.6	78	168	360	2	28	0	R
10	M	W	17	Ri	+		15.0	80	60	300	1	4	0	R
11	M	W	30	Li	+		20.0	84	48	360	1	8	0	R
12	M	W	33	Ri	+		10.5	76	78	340	1	10	0	R
13	M	W	27	RiLi	0		21.0	90	72	400	1	36	+	R
14	M	W	38	Lu	0		13.0	92	120	320	1	12	0	R
15	M	N	62	RuRmRi	+	Jaundice, Delirium	25.0	75	98	500	2			D
16	M	N	40	RiRm	+		30.2	76	78	300	1	5	0	R
17	M	N	50	Ri	+		28.3	86	72	620	2	27	+	R
18	M	N	41	RiRuRmLi	+	Syphilis	18.0	96	96	1,250	4	78	0	R
19	M	W	31	Li	0		12.4	81	48	180	1	4	0	R
20	M	W	48	Li	0	Pulmonary Tuberculosis Fractured Ribs	12.0	85	50	240	1	9	0	R
21	M	W	25	RiLi	0		23.1	92	96	200	1	4	+	R
22	M	N	38	RmLi	0	Syphilis	12.0	90	144	380	1	2	0	R
23	M	W	33	Li	0		14.0	75	100	260	1	16	0	R
24	M	W	18	Ru	0		12.0	70	24	220	1	8	0	R
25	M	N	30	RiRm	0		13.2	80	170	280	1	12	0	R
26	M	N	52	Li	0	Auricular Fibrillation	15.5	60	104	340	1	2	0	R
27	M	N	34	Ru	0	Syphilis	15.1	87	80	200	1	8	0	R
28	M	W	56	Ri	0	Arteriosclerotic Heart Dis- ease, Jaundice	15.0	34	105	360	1	4	+	R
29	M	W	31	Rm	0		24.5	85	96	200	1	5	0	R
30	M	W	62	Ru	+	Arteriosclerotic Heart Dis- ease, Obesity, Pulmonary Edema	5.3	68	144	400	1			D
31	M	N	31	Rm	0		32.0	97	36	200	1	4	0	R
32	M	N	38	Ri	0	Auricular Fibrillation	18.2	86	36	200	1	10	0	R
33	M	W	21	Ri	0		24.1	88	36	200	1	13	0	R
34	M	N	28	Ru	+		22.6	95	96	260	1	4	0	R
35	M	W	12	Li	0	Meningismus, Gastroenter- itis	28.4	96	36	200	1	12	0	R
36	F	N	34	Ri	0		18.2	90	80	200	1	6	0	R
37	F	N	42	RuRmLi	+	Pulmonary Tuberculosis (fi- broid), Pulmonary Edema	19.0	85	144	360	1	20	0	R
38	F	W	25	LiLi	0		15.3	71	78	400	1	12	0	R
39	F	W	19	RmRu	0		18.0	85	96	360	1	20	+	R
40	M	W	47	RiRm	0		18.2	80	72	220	1	5	0	R
41	F	W	52	RiRm	+		18.3	81	84	400	1	8	0	R
42	M	W	17	Li	0		28.3	92	76	240	1	12	+	R
43	M	W	38	LiRm	+		14.2	76	60	260	1	8	0	R
44	F	W	33	Ri	+	Rheumatic Mitral Stenosis and Insufficiency	15.4	80	40	200	1	12	0	R
45	M	N	38	Ri	+		17.6	85	76	260	1	16	0	R
46	M	W	19	Li	+		15.4	91	144	260	1	16	0	R

the results of the Francis test. We have found that the pulse and respiratory rate, especially the latter, are excellent clinical guides as to the necessity of further serum treatment. When either or both remained elevated, more serum was given.

## Results

*Pneumonia Due to Pneumococcus Type V*—Forty-one patients were treated with Type V unconcentrated and refined rabbit antipneumococcus serum. (The important details are summarized in Table 1.) The pneumonia had been present for an average of ninety hours, with extremes of twenty-six hours and 192 hours, before

rabbit serum was administered. Twenty-eight patients were treated after the pneumonia had been present seventy-two hours or more. Twelve patients had, on admission, consolidation of two or more lobes, and in 8, there was bilateral consolidation. Nine patients had bacteriemia when first seen. The average dose of rabbit serum was 290,000 units, and crisis occurred in an average of fourteen hours.

Forty patients recovered, and 1 died. Patient 34, in whom serum was not given until one hundred and twenty hours after onset, died apparently during a thyroid crisis.

Thirty-two patients, 6 of whom had

bacteremia, were successfully treated with one dose. In these patients, crisis occurred in an average of eight and one-half hours, the average single dose being 246,000 units. The blood stream was sterilized in every instance after the administration of the projected dose. Serum sickness developed in 11 patients. The mortality rate for Type V pneumonia was 2.4 per cent.

*Pneumonia Due to Pneumococcus Type VII*—Forty six patients were treated with Type VII unconcentrated and refined rabbit antipneumococcus serum. (The important details are summarized in Table 2.) The pneumonia had been present for an average of eighty three hours, with extremes of twenty hours and one hundred and ninety two hours, before rabbit serum was administered. Thirty patients were treated after the pneumonia had been present seventy two hours or more. Nineteen patients were admitted with consolidation of two or more lobes, and of these, 7 had bilateral involvement. Sixteen patients had bacteremia on admission. The average amount of rabbit serum given was 340,000 units. Crisis occurred in an average of fifteen hours.

Forty four patients recovered and 2 died. These 2 fatal cases were Patients 15 and 30, in each of whom a severe bacteremia was found, and serum therapy was delayed until ninety six hours and one hundred and forty four hours, respectively. Patient 30 was moribund on admission, had pulmonary edema, and died within twelve hours after starting treatment with serum.

Thirty-six patients, 7 of whom had bacteremia, were successfully treated with one dose. In these patients, crisis occurred in an average of nine and one-half hours, the average single successful dose being 270,000 units. The blood stream was sterilized in every instance after the projected dose. Serum sickness developed in 9 patients. The mortality rate for Type VII pneumonia was 4.4 per cent.

*Pneumonia Due to Pneumococcus Type VIII*—Thirty-eight patients were treated

with Type VIII unconcentrated and refined rabbit antipneumococcus serum. (The important details are summarized in Table 3.) The pneumonia had been present for an average of seventy nine and one-half hours, with extremes of fifteen hours and three hundred and thirty-six hours, before rabbit serum was administered. Twenty two patients were treated after the pneumonia had been present seventy-two hours or more. Nineteen patients were admitted to the service with consolidation of two or more lobes, and of these, 10 had bilateral consolidation. Twelve patients had bacteremia on admission. The average amount of rabbit serum given was 300,000 units. Crisis occurred in an average of twelve hours.

Thirty-eight patients recovered and none died. Thirty four patients, of whom 9 had bacteremia, were successfully treated with one dose. In these patients crisis occurred in an average of ten hours, the average single successful dose being 269,000 units. The blood stream was sterilized in every instance after the administration of the projected dose. Serum sickness developed in 9 patients. The mortality rate for Type VIII pneumonia was 0 per cent.

### Comment

One hundred and twenty five cases of pneumonia, of which 41 were Type V, 46 Type VII, and 38 Type VIII, were treated with an initial projected dose of homologous unconcentrated and refined rabbit antipneumococcus serum. An average of eighty four hours had elapsed from the onset of the disease until serum therapy was begun. Eighty patients were admitted seventy two or more hours after the onset of the pneumonia. Fifty patients had consolidation of two or more lobes, and of these, 20 had bilateral consolidation. Bacteremia was found in 37 patients on admission to the service.

One hundred and twenty two patients recovered and 3 died. There were 2 fatal cases of Type VII pneumonia both of which were complicated by bacteremia and in both of which it was not possible

TABLE 3—TYPE VIII PNEUMONIA TREATED WITH TYPE VIII RABBIT ANTIPNEUMOCOCCUS SERUM

Case	Sex	Race	Age	Lobes Involved	Bacteremia	Pre-existing Diseases and Complications	WBC $\times 1,000$	Neutrophils %	First Serum Hrs. after Onset	Units $\times 1,000$	No of Doses	Crisis Hours after 1st dose	Serum Sickness	Results
1	M	W	57	RiRm	0		16 2	83	80	400	1			R
2	M	W	33	Li	0	Circulatory Collapse Pulmonary Atelectasis	32 0	87	36	300	1	16	+	R
3	M	W	55	RiRm	0		19 5	90	96	300	1	10	0	R
4	M	W	44	Li	+	Diabetes Mellitus	5 2	78	62	300	1	8	0	R
5	M	W	48	RiRuLiLu	0	Auricular Fibrillation	21 8	90	72	120	1	36	+	R
6	M	W	34	RiLi	0		17 2	96	50	200	1	9	0	R
7	M	W	46	RiRuRm	0		3 1	72	127	300	1	9	+	R
8	M	N	34	Li	+		10 0	75	78	380	2	15	0	R
9	M	W	47	Li	0	Jaundice, Delirium	16 8	91	96	200	1	8	0	R
10	F	W	54	RiRm	0	Arteriosclerotic Heart Disease	21 0	89	36	300	1	6	+	R
11	M	N	43	LuLi	0		9 7	70	92	400	1	5	0	R
12	M	N	53	LiRi	0		12 1	83	60	220	1	10	0	R
13	M	N	30	Li	0		39 2	91	30	240	1	3	+	R
14	F	W	66	LiRi	0		10 4	76	336	300	1	10	0	R
15	F	N	21	Li	0	Syphilis	18 0	80	36	200	1	8	0	R
16	F	N	23	RiRuRmLi	0		22 8	91	80	300	1	4	+	R
17	M	N	25	Li	0		23 0	80	36	200	1	5	0	R
18	M	W	45	Ri	+	Delirium Tremens	4 8	60	76	600	2	30	+	R
19	M	N	38	RiRm	0		22 0	92	96	240	1	8	0	R
20	M	W	59	RiRmLi	0	Bronchial Asthma Myocardial Insufficiency	31 7	88	72	400	1	6	0	R
21	M	N	27	RiRmLi	+	Delirium	14 1	84	168	800	2	32	0	R
22	M	W	52	Ru	0	Emphysema	19 2	67	124	280	1	9	0	R
23	M	N	20	Li	0		24 0	89	15	380	2	48	0	R
24	M	W	70	LiRu	0		10 2	84	54	280	1	4	0	R
25	M	N	34	Li	+		8 2	68	15	200	1	8	0	R
26	F	W	21	Li	0	Syphilis	18 3	97	36	200	1	8	0	R
27	F	W	66	RiLi	0	Obesity, Meteorism, Hypertension	28 6	78	48	300	1	12	0	R
28	F	W	23	RuRi	0	Jaundice, Meteorism	22 8	91	72	300	1	4	+	R
29	F	N	24	Ri	0		17 5	80	120	280	1	8	+	R
30	F	N	51	Ru	+		9 0	73	144	400	1	18	0	R
31	F	W	42	Ru	0		16 4	86	120	160	1	4	0	R
32	M	W	48	RiRm	+	Jaundice, Hypertensive Heart Disease, Myocardial Insufficiency	5 6	70	72	400	1	30	0	R
33	F	W	62	Ri	+		7 4	65	50	200	1	8	0	R
34	F	W	38	Ri	+		8 3	56	72	300	1	8	0	R
35	F	N	17	Ru	0	Pregnancy	18 0	86	28	100	1	5	0	R
36	F	N	35	RuRi	+		10 9	78	20	260	1	6	0	R
37	F	W	36	Ri	+	Diabetic Acidosis	9 3	71	120	300	1	32	0	R
38		W	37	RiLi	+		5 7	40	96	300	1	12	0	R

to administer serum until ninety-six and one hundred and forty-four hours after onset of the pneumonia. There was 1 fatal case of Type V pneumonia complicated by hyperthyroidism, in which serum was not given until one hundred and twenty hours after onset of the pneumonia. There were no deaths from Type VIII pneumonia.

No patients with Types V, VII, or VIII pneumonia died when treated within the first ninety-six hours of the disease. Despite the inclusion of cases in which serum therapy was not started until late in the disease, and despite the known high fatality in such cases, especially when the pneumonia was complicated in almost 30 per cent by bacteremia, the mortality rate was only 2.3 per cent (Table 4).

Immediate reduction of the toxemia

was obtained, and bacteremia was controlled in practically all cases, when the initial dose was administered. Tissue antibodies and a state of recovery of the tissues developed, as demonstrated by a positive reaction of the skin to pneumococcus polysaccharide. Empyema developed in only 1 case (0.8 per cent), although pleural exudate was present in 10 cases on admission.

In one hundred and two cases (82 per cent) a single projected dose was sufficient to produce a critical fall in temperature, pulse, and respiration. Crisis occurred in these cases in an average of nine and one-half hours after this initial projected dose had been given. Fifteen cases (12 per cent) required two doses of rabbit anti-pneumococcus serum to produce a crisis.

TABLE 4.—PNEUMOCOCCUS PNEUMONIA TREATED WITH HOMOLOGOUS RABBIT ANTIPNEUMOCOCCUS SERUM

Type	Number of Cases	Bacteremia	First Serum Hours after Onset Average	Total Units of Serum Average	Number of Single Doses	Crisis Hours after 1st Serum Average	Serum Sickness Number	Mortality Percentage
V	41	0	00	290 000	32	14	11	2 4
VII	46	10	83	340 000	36	15	15	4 4
VIII	38	12	79 5	300 000	34	12	20	0
Total	125	37			102		23	
Percentage		30			82		23	2 3

In the entire series, a critical fall in temperature, pulse, and the respiratory rate was obtained in an average of thirteen and one-half hours after beginning serum treatment. In 63 cases (50 per cent) a crisis occurred within eight hours after the initial projected dose.

The incidence of serum sickness occurring in this series of 125 cases was 23 per cent. The manifestations were fever, urticaria, and arthritis. These symptoms usually were mild or moderate in severity, although in a few instances a rather severe arthritis was noted. There were no instances of lymphadenitis.

### Discussion

The effectiveness of any therapy in pneumococcus pneumonia depends upon (1) the rapidity with which it can destroy the pneumococci in the tissues of the lung and in the blood stream, (2) how quickly it can neutralize the toxins and reduce the toxemia, (3) the rapidity with which it can supply pneumococcal antibodies or stimulate their formation and (4) the absence of untoward reactions that would endanger the patient's life.

We have found that the homologous un-concentrated and refined rabbit anti-pneumococcus serum fulfills these requirements in the treatment of Types V, VII and VIII pneumococcus pneumonia. There were no instances of blood dyscrasia, or of kidney or liver damage resulting from the administration of this serum.

Plummer,<sup>8</sup> discussing the use of serum in the treatment of the higher types of pneumonia, including Types V, VII, and

VIII, stated that, in his experience, with the types for which a potent horse serum was available, the response with it has been just as satisfactory as with rabbit serum. It is probably true that unit for unit rabbit antipneumococcus serum is no more efficacious than horse serum. We have given horse antipneumococcus serum in projected doses, but unless a very concentrated product was available there were untoward reactions which would preclude this procedure from general use. However a single projected dose of un-concentrated and refined rabbit antipneumococcus serum was administered without untoward reactions to all the patients in this series, and in 82 per cent of the cases was successful in producing a crisis. Thus projected dose controlled the bacteremia, reduced the toxemia, and caused a critical fall in temperature usually within ten or twelve hours.

Plummer, in his article on the serum treatment of the higher types of pneumonia, quoted the statistics collected by Heffron, in which apparently horse serum alone was used, and compiled a group of his own cases at the New York and Bellevue hospitals, treated with horse antipneumococcus serum or concentrated rabbit antipneumococcus serum. The mortality rates of the cases collected by Heffron, those compiled by Plummer, and those treated by us are respectively, for Type V pneumonia 16.2 per cent, 16.7 per cent, and 2.4 per cent, for Type VII 13 per cent, 22.6 per cent, and 4.4 per cent, for Type VIII 9.8 per cent, 18.5 per cent, and 0 per cent (Table 5).

The mortality rates of these cases

TABLE 5—MORTALITY RATES FOR TYPES V, VII, AND VIII PNEUMONIA TREATED WITH HORSE OR RABBIT ANTIPNEUMOCOCCUS SERUM

Heffron's Collected Cases	No Serum			Serum		
	Cases	Deaths	Mortality %	Cases	Deaths	Mortality %
V	511	168	32.9	210	34	16.2
VII	410	104	24.8	164	20	13.0
VIII	547	126	23.0	102	10	9.8
	1,477	398	26.9	468	64	13.6
Plummer's Cases						
V	82	17	35.4	30	5	16.7
VII	88	20	17.0	31	7	22.6
VIII	48	65	25.0	20	5	18.5
	218	61	25.8	90	17	19.5
Present Series						
V				41	1	2.4
VII				46	2	4.4
VIII				39	0	0
				126	3	2.3

<sup>1</sup> Cases treated with horse serum.<sup>2</sup> Cases treated with horse serum or concentrated rabbit serum.<sup>3</sup> Cases treated with unconcentrated and refined rabbit serum.

treated with horse antipneumococcus serum, when compared with the mortality of our cases treated with unconcentrated rabbit antipneumococcus serum, certainly do not substantiate Plummer's statement as to the comparative efficacy of horse and rabbit antipneumococcus sera.

The results that we have obtained with unconcentrated and refined rabbit antipneumococcus serum in the treatment of Types V, VII, and VIII pneumonia and those obtained by Horsfall, Goodner, and MacLeod, who also treated their cases intensively, are comparable. This is due, we believe, to the fact that a highly potent nontoxic therapeutic agent can be administered in a predetermined or projected dose and that this therapeutic agent rapidly limits the pneumonia, controls the bacteremia, and quickly reduces the toxemia without endangering the patient's life.

### Summary

1 One hundred and twenty-five patients with lobar pneumonia due to pneumococci of Types V, VII, and VIII were treated with homologous unconcentrated and refined rabbit antipneumococcus serum. There were 3 fatal cases, 1 of Type V and 2 of Type VII, in each of which serum treatment was not started until late in the disease. No patients died when treated within the first ninety-six hours of the disease. The mortality rate for the entire series was 2.3 per cent.

2 One hundred and two patients (82 per cent) were successfully treated with a single projected or predetermined dose.

3 The blood stream was sterilized in every instance when the projected dose had been administered.

4 Unconcentrated and refined rabbit antipneumococcus serum is a highly potent, nontoxic therapeutic agent in the treatment of lobar pneumonia.

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Drs. Joseph K. Bradford, Duncan Clark, John Conley, Robert Dickes, Henry Gardstein, Philip Grenley, Ernest E. Keet, Catherine D. Mangan, Albert H. Mayer, David Rabinowitz, and Sanford Sarney gave clinical assistance.

Anne M. Smith, Dora Zuckerman, and J. Blitstein gave technical assistance.

We wish to express our appreciation to Drs. Wade W. Oliver and Arnold Eggerth, of the Department of Bacteriology, Long Island College of Medicine, for their courtesy and cooperation.

The members of the staffs of the hospitals named, notably Drs. Tasker Howard, J. Hamilton Crawford, Henry Moses, George Roberts, Henry Wolfer, George Sheehan, George H. Merrill, Arthur Fankhauser, and Edward E. Cornwall, permitted us to treat patients in their services with unconcentrated and refined rabbit antipneumococcus serum.

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## Discussion

Dr Edward C. Reiffenstein, *Syracuse New York*—This report of the use of rabbit anti pneumococcus serum in the treatment of Types V, VII, and VIII pneumococcal pneumonia is interesting and instructive. There are certain features of this excellent paper which I wish to emphasize briefly first, the high percentage of cases in which there were positive blood cultures—a total of 37 cases in a series of 125. In evaluating the effect of any therapeutic agent in the treatment of pneumonia, one should always take into consideration the virulence of the infection and the fact that the infection varies in virulence from year to year with the result that some years there is a high mortality rate in pneumonia and in other years a low rate. One condition responsible for the high rate is bacteremia and in this series reported it was present in almost 30 per cent.

If one contrasts the high percentage of positive blood cultures found in this series with the very few recorded in the reports of the British and American observers in the use of sulfa pyridine, the results Dr Loughlin obtained become even more impressive and to my mind prove the effectiveness of antipneumococcus rabbit serum in the treatment of pneumonia. In my experience excellent results have been obtained from its use in the treatment of pneumonia due to pneumococci of various types. It has been the hope of every physician treating pneumonia that a highly potent antibacteriocidal, refined concentrated nontoxic serum would

be produced eventually. It is my impression that this type of serum was used.

Another phase of the report should be commented upon, namely that no patient died in whom serum had been given within the first ninety six hours after the onset of the disease. It has been repeatedly demonstrated that the earlier the serum is given the better the chances of recovery will be. Analysis of the deaths in the reported series reveals several important points that should be stressed one the low death rate—2.3 per cent. I wish to restate this in another way so that you will appreciate its significance namely 3 deaths in 125 cases in which over 30 per cent had positive blood cultures. This is important and becomes more so when one considers that serum was not given until two hundred and ten hours after the onset of the disease in the case in which death occurred in the Type V pneumonia and also was not given in the deaths in the Type VII infection until ninety-six and one hundred and forty-four hours after the onset of the illness. These deaths might not have occurred if the serum had been used early.

The author speaks of the use of the predetermined or projected dose. This is also a very important part of the paper. In the use of serum in the treatment of all types of pneumococcal pneumonia it is being more and more appreciated that a single, large dose given early in the disease is the best and most satisfactory method of controlling the infection. In this series only one predetermined dose of serum was given in 82 per cent and a crisis occurred following its use in an average of nine and one-half hours.

I wish to congratulate Dr Loughlin upon the excellent results that were obtained. I consider his contribution to the treatment of pneumonia one of the most important that has appeared this year.

## 110-YEAR-OLD PATIENT HAS SUCCESSFUL PROSTATECTOMY

Reporting a successful prostatectomy in a patient who was 110 years old, Dr J Bayard Clark, of New York, in the *Journal of the American Medical Association* for Aug 12 says that the patient was a Negro who claimed that he was born in slavery in 1837 in Virginia. Careful inquiries, Dr Clark reports, tended to substantiate the patient's declarations as to his age. cursory examination of the medical literature, the doctor says reveals no report of a prostatectomy having been done in the case of anyone reaching a hundred years of age.

On waking the morning after his operation, Dr Clark says he demanded a square meal. On the third morning I found him propped up in bed joyfully puffing away at an ancient pipe.

Within six weeks after the operation he was up and about the ward and five days later was discharged. A year after the operation he was still alive and apparently in very good health. The diagnosis of the case was benign enlargement of the prostate with a mild chronic inflammation of that gland.



# THE TREATMENT OF TYPE III PNEUMOCOCCUS PNEUMONIA WITH SULFANILAMIDE

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**A**LTHOUGH favorable results have been reported both clinically and experimentally with sulfanilamide in Type III pneumococcus infections, it appeared to us that further investigation was needed in both of these fields before it could be accepted as a valuable therapeutic agent. Because of this obvious need, 17 cases of Type III pneumococcus pneumonia treated with sulfanilamide are reported

These cases were admitted to the pneumonia service of the Long Island College Hospital and the medical service of the Kings County Hospital, Brooklyn, from November, 1937, to April, 1938. The majority of these patients were of the poorer classes, and many were malnourished. Likewise, the majority had had no medical attention prior to admission. Because of the nonselection of cases for treatment, patients with various pre-existing systemic diseases were treated with sulfanilamide.

## Administration and Dosage of Sulfanilamide

Immediately after the patient's admission to the service, a suitable specimen of sputum was obtained. The sputum was typed for pneumococci by the Neufeld reaction as proposed by Sabin. While the typing was in progress, a history was obtained and a physical examination was made. Blood for culture was taken. A roentgen examination of the chest was made. The results of the sputum typing were confirmed by culture and inoculation of the peritoneum of a mouse.

When a Type III pneumococcus was isolated from the sputum, the patient was given a dose of 5 gr (0.3 Gm) of sulfanilamide. If no untoward reactions

occurred by the end of an hour, 60-75 gr (4-5 Gm) of the same preparation were administered by mouth. Additional doses of 20 gr (1.3 Gm) were given four hours later and continued every four hours until recovery occurred, and with each dose, 15 gr (1 Gm) of sodium bicarbonate were administered. In each case, an attempt was made to reach a level of 11 mgm of sulfanilamide per 100 cc of blood.

Sulfanilamide determinations, blood cultures, blood counts, hemoglobin determinations, and urinalyses were made in each case as indicated.

## Results

Seventeen patients with Type III pneumococcus pneumonia, 3 of whom were Negroes, were thus treated with sulfanilamide. The important details are summarized in the table. The pneumonia had been present for an average of sixty-six hours, with extremes of eight hours and 170 hours before sulfanilamide was administered. In 8 patients, treatment with sulfanilamide was begun after the pneumonia had been present seventy-two hours. Six patients were admitted to the service with consolidation of 2 or more lobes, and of these, 5 had bilateral consolidation. Of the 5 patients with bilateral consolidation, 4 died. Five patients had consolidation of the right upper lobe. Three patients had bacteremia on admission, and of these, 2 recovered. The approximate average amount of sulfanilamide given was 300 gr (20 Gm). The average amount of sulfanilamide which produced crisis or lysis was 200 gr (13 Gm). After the administration of sulfanilamide, all 17 patients exhibited a cyanotic hue. Four patients revealed diminution of the hemo-

CASE NO.	RACE	SEX	PHYSICAL AND X-RAY	PLEURAL FLUID	PREEXISTING DISEASES AND COMPLICATIONS	BACTEREMIA COLONIES PER C.C.	W.B.C. THOUSANDS	NEUTROPHILS %	FIRST SULFANILAMIDE HRS AFTER ONSET	TOTAL GRAINS OF SULFANILAMIDE	CRISIS HAS AFTER FIRST DOSE	GRAINS OF SULFANILAMIDE RESULTING IN CRISIS	RESULTS
1	W	F	32	+	Chl. Alcoholicum		8.0	70	58	120	24	120	R
2	W	F	58	+	Chronic Arteriosclerotic Heart D. and Myocardial Decomp. Behring		23.0	97	76	240			D
3	W	M	41	+	Delirium	100	10.6	82	42	250	48	250	R
4	W	F	34	+	Delirium	80	3.5	50	170	500			D
5	W	F	47	+	Recurrent Acute Stenosis Myocardium Behring		25.0	90	86	300	36	180	R
6	W	F	62	+	Chronic Asthma		21.0	76	107	420	22	180	R
7	W	F	82	+			17.5	80	28	540	12	168	R
8	W	F	35	+			28.7	80	58	870	240	870	R
9	W	F	46	+			21.3	84	46	725	160	150	R
10	W	F	47	+	Edema of Lungs		8.6	65	72	95			D
11	W	F	64	+	Syphilitic Aortic Myocardial Decomp.		11.5	79	81	140			D
12	W	F	32	+	Myocardial Hypertrophy		37.2	88	96	600	26	240	R
13	W	F	82	+	Generalized Arteriosclerosis Anemia Severe	10	10.4	80	130	230	16	168	R
14	W	F	71	+	Fistula of Nerves		18.1	77	28	388	45	320	R
15	W	F	58	+	Diabetes Mell. Hypertension Myocardial Decomp.		19.4	75	6	345			D
16	W	F	42	+	Jarvis		32.0	84	24	435	26	216	R
17	W	F	34	+	Jarvis		34.0	98	24	240	120	240	R

W white M negro

R recovered D=dead

globin to 20 per cent (Sahli) below the determination made upon admission. Delirium, which was present in 4 patients on admission, became more marked after sulfanilamide therapy was instituted. Three patients developed leukopenia. One patient, who had an infected pleural exudate and syphilitic heart disease on admission, died of the latter condition three days after treatment was begun. One patient was jaundiced, and the degree of icterus was not increased by the use of sulfanilamide.

Twelve patients recovered and 5 died, the mortality rate being 29.4 per cent. Four of the patients who died had disease processes which of themselves were sufficient to cause death, and 3 of these patients had bilateral pneumonic processes. Patient 4 died of primary pneumococcus pneumonia which was complicated only by bacteremia. Treatment was delayed until after seventy-two hours in each of these cases, with the exception of Case 15, in which treatment was begun within eight hours after onset of the pneumonia. This patient, how-

ever, had diabetes mellitus, malignant hypertension, and myocardial insufficiency, which conditions evidently were causative of death. Patient 3, a white male, aged 41 years, had 100 colonies of pneumococci per cc. of blood. He recovered after 250 gr (16.6 Gm) of sulfanilamide had been administered. Case 12 was a white female, aged 82 years, with 10 colonies of pneumococci per cc. of blood, who recovered within sixteen hours, during which time 180 gr (12 Gm) of sulfanilamide had been given. The average age of the 17 patients was 49.6 years. Of the 10 male patients, the average age was 51.7 years. The ages of the 7 females averaged 46.4 years. Extremes of 32 years and 71 years were noted in the male group and 34 years and 82 years in the female group. There were 3 deaths in the male group, of which the average age was 56.6 years, and 2 deaths in the female group, of which the average age was 46 years. Except for the delirium, moderate anemia, and leukopenia, there were no other untoward reactions.

## Discussion of Results

It is interesting to note how many cases of Type III pneumococcus pneumonia were secondary to such conditions as chronic alcoholism, malignant hypertension, obesity, aortic stenosis and morphine addiction, bronchial asthma, pulmonary tuberculosis, diabetes mellitus, syphilitic aortitis, and fracture of the humerus. Of the entire group of 17 patients only 7 could be considered as having primary pneumonia as far as systemic diseases were concerned. While 9 of the 10 males had systemic diseases, only 1 of the 7 females manifested such disease processes.

In this group of 17 patients, there were only 5 patients who were under 40 years of age, and of these 1 died. There was 1 death in a group of 5 patients whose ages ranged from 40 years to 47 years. The ages of the remaining 7 patients ranged from 58 years to 82 years, and of these, 3 died. The most striking case of the entire series was a patient 82 years of age who recovered despite the presence of bacteremia and severe anemia.

Crisis occurred most frequently after 160-180 gr (10.6-12 Gm) of sulfanilamide had been administered, at which time the amount of sulfanilamide in the blood was approximately 11 mgm per cent. However, in 1 case crisis occurred coincidentally with the administration of 120 gr (8 Gm). Sulfanilamide was usually discontinued after a critical fall of temperature had been obtained. In several cases it was continued, and 800 gr (53 Gm) were given to 1 patient without untoward effects. Regardless of the day of the disease, the fall of temperature, when obtained, occurred within an average of twenty-four hours after treatment was begun.

Although no definite statement can be made concerning the mortality rate of Type III pneumococcus pneumonia treated with sulfanilamide, the mortality in this series of cases was lower than in those cases of Type III pneumonia treated with antipneumococcus serum or non-specific measures. The mortality rate of Type III pneumococcus pneumonia

treated with homologous rabbit antipneumococcus serum was reported by Horsfall, Goodner, MacLeod, and Harris<sup>1</sup> as 46 per cent. In other series of cases in which nonspecific measures were utilized the mortality rate varied between 50 and 80 per cent.

Toxic reactions such as increased delirium, anemia, and leukopenia were only moderately frequent. In none of the cases were these reactions alarming, nor did they result in a fatal outcome. However, because of toxic reactions reported in the literature, we exercised caution during the administration of sulfanilamide to each patient.

## Summary

1 Seventeen patients with Type III pneumococcus pneumonia were treated with sulfanilamide. There were only 7 cases of primary Type III pneumococcus pneumonia. In the remaining 10 cases, the pneumonia complicated a pre-existing disease process. There were 5 fatal cases, in 4 of which treatment was delayed until late in the disease, i.e., after seventy-two hours. Four of these patients had pre-existing systemic disease conditions which of themselves constituted serious complications. Of the 3 patients with bacteremia only 1 died. The mortality rate for the entire series was 29.4 per cent.

2 There were no severe toxic reactions incident to the use of sulfanilamide, and in no instance did a toxic reaction contribute toward a fatal termination.

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Anne M. Smith, Dr. Aaron Kaminsky, Dr. Gerald Griffin, Dr. Henry Gozan, Dr. Catherine Del Mangan, Dr. Joseph K. Bradford, Dr. Ernest E. Keet, William V. Larkin, and Kate Wohl gave technical and clinical assistance.

The members of the staffs of the hospitals named, notably Drs. Tasker Howard, J. Hamilton Crawford, Henry Moses, Henry Wolfer, George A. Merrill, and Arthur Fankhauser, permitted us to treat patients in their services with sulfanilamide.

<sup>1</sup> Horsfall, F. L., Jr., Goodner, Kenneth, MacLeod, C. M., and Harris, A. H. New York State J. Med. 38, 245 (Feb. 15) 1938.

## *Symposium on the Industrial Low Back*

### THE INDUSTRIAL LOW BACK FROM THE ORTHOPEDIC STANDPOINT

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THE term industrial low back refers naturally to the type of derangement of the lower back commonly seen following industrial injuries. It need hardly be emphasized that the physiology and mechanism of the back are the same in a longshoreman, in a cafeteria counterman and in a dentist. But an injury, such as a wrench of the back, may have very different effects in these different types of workers. Since the physical labors of a dentist are comparatively mild, his tissues retain their normal elasticity. Hence the injury may result in only a simple tear of some fibers of the erector spinae muscle, from which he recovers completely in a week or two. The counterman, whose back muscles are often fatigued or exhausted from the strenuous hours of work, may also suffer from a simple tear of his back muscles, but because of their irritability and fatigue, the muscles heal very slowly, remain sensitive and painful for many weeks, and may even become the seat of a myositis, causing prolonged disability. In the longshoreman, in whom degenerative changes in the vertebral joints set in much earlier than in one leading a physically less strenuous existence, the same degree of injury may cause more lasting damage to the tissues. It may even set up an arthritis in the intervertebral joints, or, through soft tissue damage, aggravate a pre-existing so-called osteoarthritis. As a result, not only would the period of total disability be very much longer than in the dentist or the counterman, but there may actually be initiated a permanent partial disability. In addition to the physiologic differences that one expects in the dif-

ferent types of industrial patients, one must take into consideration the seemingly ever present psychic upset resulting from an injury in an insured individual, frequently operating to prolong its effects. One may be dealing with a man who, having worked for twenty years or more without a respite, now sees an opportunity of having a vacation and yet receiving a weekly indemnity, or the patient may see a chance of obtaining a substantial financial settlement. The latter attitude is at times fostered by an overemphasis on the disability by his physician, or more often by the advice of an attorney visualizing a 'good case' through institution of so-called third party proceedings. For us, however, faced with a case of low back pain it is important only that we determine the pathology and the degree of the lesion, its relation to the general physical constitution of the patient, its relation to coexisting and antecedent lesions, and the likely course of the illness. Strictly upon these data must we base our prognosis and program of treatment.

Our major problem in the management of lesions of the lower back is the establishment of an accurate diagnosis of the pathology and its exact location in each case. It must be admitted that not all traumatic lesions of the back are at present susceptible of an exact diagnosis. But we understand many of them. Hence, if we bear in mind the various known pathologic conditions and learn others as they are established through research, we will be doing our full measure of duty. This leads us promptly to a discussion of the known lesions of the lower back, causing backache. It will

*The three papers included in the symposium were read at the Annual Meeting of the Medical Society of the State of New York Syracuse April 26 1939*

be convenient to divide these into those affecting soft tissues, joints, and bones

### Lesions of the Soft Tissues

*Strain of the Back*—This term implies a traumatic lesion of the muscles, fasciae, and ligaments of the back, including the buttocks. The lesion results from a sudden, violent, or unguarded movement of the trunk, resulting in a localized tear of some of the soft tissues. The symptoms consist of localized pain and tenderness. If the lesion is severe, there may be, in rare instances, a swelling and discoloration. The diagnosis is based on the history of the injury, the local symptoms, and an absence of evidence involving the joints or bones of the trunk or pelvis. When uncomplicated, this lesion yields readily to treatment by adhesive plaster strapping with or without rest in bed for a day or two, followed by the soothing effects of physiotherapy. Not infrequently the patient can continue at his work, if not laborious, or he may temporarily change to light work, if his regular employment involves much use of the injured area. Occasionally the recovery may take several weeks, as pain may persist even after local tenderness has disappeared. Here, as in all other lesions in an insured employee, it is imperative for the physician not to sensitize the patient by an elaboration of the extent of the injury, for the resultant psychic trauma may long outlast the physical damage.

Special attention should perhaps be devoted to injuries of the interspinous ligaments and the *ligamenta flava*. Strains of the interspinous ligaments yield after a variable period to conservative treatment. In lesions of the interspinous ligaments, the pain and tenderness are localized in the interspinous area. An exact diagnosis is difficult, if not frequently impossible, and is based solely on the clinical observation of the limitation of the symptoms to an interspinous area. When the *ligamenta flava* are affected, there may be a residual thickening of the ligaments that encroach on the intraneural tissues, resulting in pain along

the peripheral nerves, notably the sciatic. Other neurologic signs are paresthesia and hypesthesia which, by their distribution, identify the nerves pressed upon and the location of the injured ligament. The establishment of a positive diagnosis of injured and thickened *ligamenta flava* is aided by the site and indentation of a column of lipiodol injected into the spinal canal. This lesion may be mistaken for a cord tumor or an intraneural herniation of a nucleus pulposus, a subject now undergoing extensive research, a résumé of which will be given by Dr. Bosworth, who is participating in this symposium. In the case of lesions of the *ligamenta flava*, when the pathology is extensive enough to produce a chemical disturbance, resection or excision of the involved ligament is necessary.

*Myositis, Fasciitis, Myofasciitis*—It is believed, and theoretically it sounds plausible, that an injury to any of the muscles, the fasciae, or the aponeurotic attachments of the muscles in the back or buttocks may cause a chronic inflammation in these tissues and a disabling backache. Actually, because of the lack of adequate pathologic material confirming this opinion, we can still speak about this lesion only in very vague terms. There are undoubtedly many instances of persistent pain and tenderness localized in a small area of muscle, or in the bony attachments of the muscles or the deep fascia of the back. In most cases, the symptoms disappear under conservative treatment. Sometimes it is necessary to relieve the tension on the affected muscle or fascia by releasing it from its bony attachment—as advised by Percy Roberts many years ago, and by Clarence Heyman recently, for the gluteal muscles arising from the iliac crest—or by sectioning the gluteal fascia, as advocated by Frank Ober. In 3 of my cases, 1 of the back and 2 of the buttocks, the muscle tissue removed at operation showed hyaline degeneration. In many others, however, no pathologic lesion was discerned, either grossly or by the microscope. The effect of the operation is not predictable, although relief is secured in the

majority of cases so treated. The treatment of traumatic myositis, fascitis, and myofascitis should at first be of a conservative nature in all instances, since it is often successful. Stripping of the muscles or section of the gluteal fascia should be reserved for the chronic and obstinate cases.

### Lesions of the Joints

*Sprain of Sacroiliac Joint*—In my experience, this is the commonest lesion in the industrial low back group and is indeed of very frequent occurrence in adults. It is appreciated that the sacroiliac joint is somewhat different from other joints in that it tends to ankylose in some individuals, especially after the fourth decade of life. Yet this joint is constructed like others. It has opposing articular surfaces, is lined by hyaline cartilage, is lubricated by synovial fluid, and is supported by ligaments. It is, therefore, naturally subject to the lesions of other joints, such as sprains. In fact, the position of the sacroiliac joint between the trunk and the lower limbs renders it very liable to injury from the effects of weight bearing and from the loss of proper correlation between the movements of the superimposed, very mobile spine and the lower limbs. The following is a typical history:

A man carrying a heavy bundle down a flight of steps makes a misstep and twists his back. He has immediate pain in the area of 1 sacroiliac joint. The pain persists and does not radiate. There is local tenderness. All movements of either the trunk or a lower limb cause pain in the affected sacroiliac area. Swelling and discoloration are neither seen nor expected. An x ray film of the pelvis is usually negative. In 1 severe case seen within twenty four hours of the injury the roentgenogram showed the involved sacroiliac joint to be hazy just as any other sprained joint with an acute effusion might be. The history and physical signs in the case described warrant the diagnosis of a sprain. I am not in accord with those who deny the possibility of a sprain of the sacroiliac joint because it is protected by very strong ligaments. Even the tendo achillis which is one of the strongest soft tissues in the body may and does rupture under adequate tension.

I have seen many cases similar to the one described above. The majority of these lesions yield to conservative treatment.

Some cases of sacroiliac sprain do not recover completely. There is a very marked tendency to recurrence and chronicity. Recurrences often appear, seemingly without any provocation. In an undetermined percentage, an arthritis supervenes.

*Lumbosacral Sprain*—The lumbosacral joints are sprained nearly as frequently as the sacroiliac joints. It is not uncommon to find all of these joints involved simultaneously. In a lumbosacral sprain, the pain is definitely limited to this area, which is tender upon pressure. The motions in the lower back are restricted and excite muscle spasm. The symptoms naturally vary in intensity, depending on the severity of the lesion. The x ray films are negative. Among the predisposing factors of a lumbosacral sprain are asymmetric lumbosacral articular facets, spina bifida occulta, a unilateral, enlarged fifth lumbar transverse process, a sacralized fifth lumbar transverse process, a unilateral, or bilateral laminar defect, in the fifth lumbar vertebra with or without a spondylolisthesis and a pre-existing inflammatory lesion such as an arthritis.

*Sprain of Intervertebral Joints*—While the lumbosacral is more commonly affected than any of the other lumbar joints, yet naturally an injury may involve any of the lumbar intervertebral articulations. The symptoms include pain, stiffness of the back, some difficulty or awkwardness in walking and objectively, restriction of lumbar spinal motions and localized tenderness to pressure. The x ray films are usually negative and the diagnosis depends on the history of the injury and the localized pain and tenderness.

The treatment of acute sprains depends entirely on the severity of the lesion. In the mild case simple strapping of the back, perhaps rest in bed for a day or two, and a few applications of physiotherapy may be adequate to relieve all the symptoms. Frequently, however, the

symptoms persist and the treatment must be prolonged. It is well in this lesion to apply very accurate immobilization of the back. This, in some cases, may require the application of a plaster of paris jacket or corset, and the retention of this protection to the back until all the pain disappears. Such rigid treatment will probably help to prevent chronicity. When the severe symptoms subside the jacket or corset should be replaced by a low back belt until normal painless motion in the back is re-established.

*Recurrent Sprains of the Sacroiliac or Lumbosacral Joints*—We know that these lesions occur frequently, but their exact etiology and pathology are as yet unexplained. It is common knowledge that after a man has had an attack of low back pain resulting from even a seemingly simple sprain, he is likely to have recurrent paroxysms of backache *without any subsequent injury*, and certainly after a trauma of perhaps a slight nature, such as bending forward or rising from the stooped position. One might assume that the original sprain never healed. This would seem doubtful since the patient is entirely symptom-free during the intermissions. The most likely explanation for the recurring symptoms is that the site of the original sprain becomes a *locus minoris resistentiae* where a sprain may succeed a very mild or even unrecognized trauma. The symptoms, clinical and roentgenographic, are similar to those already described and may vary from mild to severe.

The most important aspect of this lesion relates to its treatment. When confronted by recurrent sprains of the back one must institute treatment which should be continued over a long period of time and which should consist of protection of the back by one or another support, depending on the severity of the symptoms and the patient's tolerance, and persistent physiotherapy, including graded exercises. The treatment should be maintained until the patient has no pain, feels his back to be strong, and is able to bend freely and to lift objects without any discomfort. This is probably the best,

but not a certain, means of curing and preventing recurrences. In the obstinate frequently recurrent and selected cases, an arthrodesis of the sacroiliac or lumbosacral joints may be necessary. When such an operation is done, it must be understood that we are applying a special treatment in a case in which all conservative treatment has failed and that, therefore, while we expect relief of pain we know that the function of the back will be permanently compromised by a partial loss of mobility more noticeable in the lumbosacral than in the sacroiliac cases.

One hears much loose and unscientific talk about the harmfulness of a plaster jacket and the fact that it causes atrophy of muscles and stiffness of joints. A plaster jacket is a rigid apparatus intended to be used in lesions and for areas when and where a high degree of protection is indicated. Under these circumstances a plaster jacket is a necessity. Unfortunately, plaster jackets are frequently put on by the inexpert, are wrongly designed, and are ill applied. Such jackets are poor apparatuses and are to be condemned in the same manner that a wrongly manufactured Thomas knee brace or Taylor spinal support would be. That, however, does not detract from the usefulness of a well-fitting support of plaster of paris. Upon removal of a plaster jacket, as after the discard of any brace, one may have to resort temporarily to a light corset, and one should certainly allow adequate time for the muscles of the back, abdomen, and buttocks to return to a normal degree of strength and painless function prior to being subjected to the potential strain of the average occupation.

*Arthritis of the Sacroiliac Joint*—It has been abundantly proved by Smith-Peterson and confirmed by many other surgeons that this joint may become involved in an arthritic process. The arthritis may result from many causes, among which is trauma, especially if severe or repeated, as frequently happens in an occupation that puts a great strain on the muscles and joints of the back. A traumatic arthritis may supervene

after a chronic strain or may appear directly after an acute injury. The chief features of arthritis of the sacroiliac joint are persistent pain and chronic disability. There may be many confirmatory signs, such as pain in the sacroiliac joint on lateral compression of the pelvis, local tenderness, or pain in the affected joint on flexion of the spine on straight leg raising. None of these signs is pathognomonic. The roentgenogram is as often as not of no help. When the x ray film shows haziness of the joint, irregularity of the articular surfaces, subchondral rarefaction, some sclerosis of bone, and osteophyte formation, all of which are absent on the uninvolved side, the findings are very significant and definitely help to confirm the diagnosis of arthritis. When a diagnosis has been made the treatment should at first be conservative. Protection of the joint may be obtained through adhesive plaster strapping, low back belts, spinal braces, plaster or celluloid corsets, or plaster jackets. The immobilization may be supplemented by physiotherapy. Not infrequently this program of treatment carried on for several months gives entire relief. In the obstinate cases absolute fixation of the joint through either an intra articular or extra articular fusion yields a high percentage of cures.

*Traumatic Spondylitis*—An arthritis of the lumbosacral or lumbar intervertebral joints may supervene directly after an injury or may be delayed in its onset. Many of the cases of recurrent back ache are probably due to the development of some degree of lumbar arthritis. The diagnosis is dependent not only on the history of injury but upon lumbar back ache, restricted motion in the lumbar joints, disability, stiffness and awkwardness in walking, tenderness to pressure, and morphologic changes in the x ray films, consisting of haziness of the intervertebral joints, irregularity of contour, and perhaps osteophyte formation. An important point to appreciate is that an inflammation of a single intervertebral joint may give symptoms that may be seemingly quite out of proportion to the physical findings. A most careful and

deliberate examination is indispensable for an accurate correlation of symptoms and findings. The diagnosis of lumbar spondylitis may be very simple or obscure. In this kind of case the surgeon should weigh all evidence very deliberately before reaching a conclusion. A patient may have a unilateral arthritis between the third and fourth lumbar vertebrae. This lesion may be not only painful but disabling, and yet the patient may be able to flex and extend his spine through nearly a normal range of motion, especially if permitted to do so slowly. I have many times seen the examining surgeon urge a man to keep bending down until his fingers reached the floor, and then be satisfied that the man is exaggerating his complaints, overlooking the fact that the patient had rigidity and flatness of the mid-lumbar region and that he bent forward chiefly at the lumbosacral joint. This emphasizes the observation that reliable information can hardly be obtained in a quick examination of the back such as we ourselves are likely to make in our offices, or such as the labor department physicians can make in a quadrangle teeming with activity, noise, talk, and a dozen examinations being conducted simultaneously. Unquestionably, every prolonged or doubtful back case should be subjected to a thorough study in a hospital by a committee of physicians or at least by an impartial specialist.

*Osteoarthritis of the Spine*—This is a condition of the spine seen frequently in people past 40 years of age, particularly in the short, stocky, sthenic individual. In this lesion one, several, many or perhaps even all of the lumbar and dorsal joints may be involved. The motions are usually restricted. The degree varies within wide limits so that in some there is only slight stiffness, while in others the back may be all but completely rigid. The lesion consists of a degenerative process in the articulations with (as elsewhere in the body, notably the hip) much new bone formation. Thus, in this lesion are seen many spicules of bone, osteophytes, not only at the articulations but about the periphery of the vertebral



body These osteophytes are osseous deposits in the intervertebral ligaments We commonly see many bony spurs and hooks, particularly along the anterior common ligament Some of these fuse and many grow to comparatively large proportions, mechanically interfering with the mobility and strength and functional capacity of the back Osteoarthritis is a senescent process that may be aggravated by many causes, especially an injury A trauma may excite a temporary synovitis in one of the intervertebral joints and result in a mild or severe disability It may cause a strain of a ligament (vertebral) with hemorrhage, which, in organizing, may become ossified and thus a new spur or osteophyte be produced, causing prolonged disability It may produce a myositis in the adjacent muscles Thus, while an injury is not actually responsible for an osteoarthritis, the patient with such a lesion is susceptible to many disturbances that may result from an injury, which would either have no effect or produce only a transitory inconvenience in an individual without an osteoarthritis In this sense an injury can aggravate an osteoarthritis and the result be, very properly, a compensable disability A very important point in the proof that an alleged injury has aggravated a pre-existing osteoarthritis is the history very frequently obtained that prior to the injury the claimant was able and did work at his ordinary occupation It is not uncommon to obtain a history that the patient had worked for ten or fifteen years uninterruptedly He then sustained an injury of his back and had become disabled In such a case the causal relation is apparent

*Operative Fusion of the Joints*—Those interested chiefly in the economic aspects of compensable cases never see any benefit from such procedures as a fusion of a joint They contend that they, the carriers, do not benefit by such a procedure because of the extended convalescence and the permanent, partial, or total loss of function I am not much interested in that phase so long as my patient

is free of pain and can get about comfortably It may be entirely true that a person who has been subjected to an operation, especially a fusion of a joint, has a slow recovery with impairment of function so that the insurers become liable for the full measure of compensation That, however, is their responsibility and actually is the reason for the workmen's compensation insurance, namely that the employee may receive financial assistance while disabled Our obligation as physicians is to provide the limit of medical aid to the end that the patient obtains relief from suffering and regains a measure of independence

*Sciatic Scoliosis*—Much confusion exists in the minds of many as to what this condition is Sciatic scoliosis refers to the presence of a lateral tilt of the trunk, secondary to a minor but painful lesion in the lower back or to a sciatica The term sciatic scoliosis is actually a misnomer, since sciatic pain is often absent and there is no true scoliosis A better name is lacking, however, and the term sciatic scoliosis has been used so long that it has come to denote a definite clinical state Most of the above described pathologic lesions may be accompanied by a sciatic scoliosis, namely myositis, fascitis, or myofascitis of the lower back or gluteal region, strains of the muscles or ligaments, sprains of the sacroiliac or lumbar joints, or a so-called sciatica To clarify the terminology, if a severe osseous lesion, such as tuberculosis or fracture of the spine or a spondylitis deformans, should incidentally be accompanied by some lateral curve in the spine, one would not speak of the condition of the back as a sciatic scoliosis but as a tuberculosis or fracture of the spine or spondylitis deformans, mentioning the lateral inclination of the spine only as a chance and secondary detail The importance of identifying sciatic scoliosis as a clinical entity is due to two facts first, the lateral tilt of the trunk is the most conspicuous element in the clinical syndrome and, second, sciatic scoliosis frequently necessitates special therapy in combination with the treatment

of the underlying causative pathology

The tilt of the trunk in sciatic scoliosis is an adaptive or accommodative attitude voluntarily or subconsciously assumed to relieve pain. In addition to the tilt of the back, it is abnormally flat. The lumbar spine may even be curved backward, resulting in a kyphosis. The muscles of the back are in a state of spasm. The motions of the spine are markedly although unequally, restricted, flexion being more markedly limited than any of the others. The tilt is in the direction opposite to the painful lesion in about 70 per cent of the cases, to the same side in 25 per cent, and of an alternating type in 5 per cent. The spine presents a long lateral curve in the direction of the trunk deviation and a short curve in the opposite direction in the lower lumbar area. In addition there are the symptoms and signs of the main lesion, such as those of gluteal myositis, sprain of the lumbosacral joint, or an arthritis of the sacroiliac joint.

In the early stages the deformity of the trunk disappears in the sitting or recumbent positions. If the symptoms and the deformity have existed for some weeks, or, as often happens, for months the deviation of the trunk persists in all attitudes of the body and can be overcome neither voluntarily by the patient nor through simple manipulation by the surgeon. The fixed deformity is, it is believed, due to adaptive changes in the muscles of the back and to paravertebral and intervertebral and probably, also intermuscular adhesions. The existence of such adhesions and changes in the back muscles is assumed from the experience that considerable force may have to be used even when the patient is anesthetized, to correct the deformity of the back and that during such manipulation one often hears and feels the tearing of adhesions.

The treatment of sciatic scoliosis depends on the degree of the deformity and the severity of the underlying lesion. In the mild cases rest in bed, physiotherapy, and support of the back may give complete relief. At times one must combine with the above traction of the leg on the

affected side, epidural or perineural novocain injections, and novocain injections into the sacroiliac joint or the pyriformis muscle. In the chronic and severe cases, as above mentioned the deformity of the trunk must be corrected by forcible manipulation under an anesthetic. The essential in the manipulation is to thoroughly mobilize the lumbar spine.

This stretching of the spine is accomplished as follows. The thoracic spine is fixed by an assistant, who holds the chest with his hands. The surgeon swings the lower limbs laterally first to one side and then to the other until they form a right angle with the trunk. The lower limbs are then hyperextended until the normal lumbar hollow is thoroughly re-established. At this juncture it is always found that the trunk and the spine are freely movable and symmetric. If there has been sciatic pain the sciatic nerve is also stretched by flexing the lower limb at the hip while the knee is in complete extension. In this maneuver the limb is elevated very slowly until the foot is within about 18 inches of the face. At least five minutes should be allowed for the stretching of a sciatic nerve. Moreover, the limb should be somewhat abducted to prevent the possibility of dislocating the hip. After the deformity of the back has been corrected, the trunk is immobilized in the corrected and normal attitude. With the lower limbs in hyperextension the trunk is well padded with sheet cotton or felt, and a plaster jacket is applied. When the plaster has hardened sufficiently the lower limbs are brought forward into line with the body, the affected leg is adequately padded, and the plaster of paris dressing is continued down.

The plaster spica is left on for three weeks and is replaced by a Knight spinal brace. Physiotherapy is instituted at this stage and the patient is allowed out of bed. It usually requires about three months of treatment before the patient returns to work. In the case of laborers it may be six to twelve months before the patient can resume his usual occupation.

A very interesting feature about sciatic scoliosis of a severe degree, in which the

primary lesion is in the back or pelvis but not in the sciatic nerve, is the almost uniform observation that, when the patient awakens from the anesthetic after a stretching as above described, he will volunteer the information that his former pain has completely disappeared.

*Sciatica* —This symptom so frequently accompanies lesions in the lower back that it must be included in a consideration of the industrial low back. I realize that I am treading on dangerous ground in suggesting that a sciatica may be of traumatic origin. Nevertheless the experience is frequent that a primary strain of the lumbosacral or sacroiliac joints or an injury to muscles of the pelvis and buttocks is soon followed by pain along the sciatic nerve, a sciatica, which becomes not only disabling but may become the most important feature of the ailment. Whether the sciatic nerve was itself involved in the injury, or only later secondarily affected by the swelling and edema of the tissues near its formation in the lumbar area or those in its course, as the pyriformis muscle, is difficult to answer. We know that pain along the sciatic nerve does occur and is frequently intense, and that it is often associated with atrophy of the thigh and a diminished or absent ankle reflex without motor, sensory, or trophic changes. This lesion is called sciatica, not sciatic neuritis. Sciatica is a self-limited lesion and, although it may last for months, it always disappears. The atrophy of the thigh also disappears and the ankle reflex returns. The pathology of sciatica is not understood, but it is assumed by many to consist of a perineuritis with the formation of perineurial adhesions. The perineurial adhesions may occur anywhere along the sciatic nerve but most frequently just before or just after the nerve emerges from the pelvis.

*Spondylolisthesis* —In this condition there is both an instability of the lower lumbar spine, because of the vertebral dislocation, and an actual defect in the bony ring of the affected vertebra, usually the fifth lumbar, occasionally the fourth. Under these circumstances, an individual

with spondylolisthesis is actually more likely to suffer injury to his lower back during an occupational accident than one who has no such lesion. Whether an injury can produce a spondylolisthesis is a moot question. No such proved case is on record. Knowing as we do fairly certainly that the basis for a spondylolisthesis is a congenital defect in the pedicles of the vertebrae with failure of fusion of the superior and inferior articular processes along the isthmus or narrow portion of the pedicle, it seems reasonable to consider spondylolisthesis as a congenital lesion. Many cases have been seen in children and I myself have reported an instance in a child seventeen months of age. An injury can manifestly do two things in a spondylolisthesis. One, it may increase the degree of displacement, I reported such a case many years ago. Secondly, the injury may stretch or tear the ligamentous tissue bridging the defect in the pedicle and thus produce all the symptoms of a strain of the back. In either event a previously symptom-free spondylolisthetic patient may, after an injury, suffer from symptoms based on the spondylolisthesis but precipitated by the injury.

The symptoms in brief consist of pain in the lower back and sometimes along one or both sciatic nerves, stiffness of the back, awkwardness in walking and sitting, and weakness of the back. The treatment should be the simplest that will give relief. Thus one begins by putting the patient to bed for anywhere from a few days to two weeks. Physiotherapy is used to give relief from pain and to strengthen the muscles of the back. Sometimes it is well to assure rest to the injured back by immobilization in a plaster jacket. When the patient gets out of bed one must provide him with a low back belt if the symptoms have been mild, or with a spinal brace if rigid support is needed. If, in spite of prolonged conservative treatment, the pain and weakness in the back and the disability continue, one must realize that permanent internal fixation is required. In such a case, which I emphasize is the exception, a spine fusion

operation is indicated and indispensable, not with any idea that the patient will be able to return to hard work, but in order to provide stability to the back, relieve pain, and to enable the individual to get about and rehabilitate himself in some form of gainful occupation. This is the program that would be followed and is universally approved for a noncompensation case, and should, therefore, be employed unreservedly in an injured employee.

*Fractures of the Lumbar Vertebrae*—This subject is one that could hardly be thoroughly discussed in a brief reference such as this must be. There are three points that interest us. First, in cases of severe extensive injury with nerve destruction where the damage is permanent, little can be done beyond making the individual comfortable, and applying support through jackets, corsets, or braces until the pain either disappears or has subsided materially, the fractures have united, and sufficient strength has returned to the back muscles to enable the individual to sit unaided or to get about with crutches or braces. The second point refers to comminuted fractures of several vertebrae with extensive malalignment of fragments but no nerve symptoms. In this type of case conservative treatment on a convex frame should be continued for at least several months. If all symptoms disappear and the fractures unite we reconcile ourselves to some percentage of permanent disability. But if the pain continues, a spine fusion is advised as the best means of hastening and assuring fusion of the fragments and of re-establishing stability and an earning capacity. It is surprising what a large percentage of return of function may occur even in this type of injury, especially provided that the legal entanglements are ironed out. The third group is that in which one vertebra is the seat of a compression fracture. The outlook here is most favorable. By early application of one of the modern methods of immobilization in hyperextension, one may obtain an almost perfect realignment of the fragments, early union of the fracture, and a

normal or nearly normal functioning spine.

*Fractures of the Lumbar Vertebral Processes*—These, when uncomplicated, usually heal rapidly and result in no permanent functional impairment. Occasionally a displaced fragment causes nerve pressure and has to be removed. This is the type of case in which the exaggeration of the nature of the lesion by the physician or some other person to the patient may result in a psychic trauma that will prolong the convalescence for months or even years. Such a patient should never be told that he has a fracture of the spine or a "broken back," though this is technically and legally correct, but that he has an injury of the back from which he may expect a complete recovery.

I have not brought up the subject of slipping or subluxation of either the sacroiliac or intervertebral joints because there is as yet little proved information about this lesion. Perhaps some of the recurrent sprains, especially of the sacroiliac joints, are really mild subluxations. But if they are, they do not behave like displacements in other joints. We hear a good deal about the effects of manipulation in such cases. So far as I can see we have no means in our diagnostic armamentarium to prove the actuality of this lesion in a given case. The much heralded curative manipulations appear effective only in the hands of a few seemingly specially gifted individuals. Most of my orthopedic confrères and I are unable to effectively apply the described maneuvers. I must leave it to others who have deeper convictions than I have to influence the medical public. None of the above refers, of course, to those instances of severe injury in which one finds extensive fracture of the sacrum with gross displacement of some of the fragments including articular fragments.

The above rapid review of some of the most common traumatic lesions of the lower back has necessarily omitted much valuable and interesting detail of pathology and treatment. I have purposely omitted consideration of such important aspects of industrial injuries, such as rela-

tionship to hematogenous osteomyelitis of the lumbar vertebrae or lumbar Pott's disease, because these subjects could not be adequately considered within the time allotted for this essay. It is hoped that the discussion of the essential pertinent elements in the common disorders of the low back will aid in establishing a unanimity of opinion and practice in their care.

It is of course quite apparent to even the casual student of the problem of low back pain that we are only at the beginning of the study of the differential diagnosis of the lesions causing low backache. We hope that the continued research into this problem in the various orthopedic, industrial, and neurologic centers will clarify the doubtful phases of the industrial low back.

## NEUROLOGIC ASPECTS OF BACKACHE

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**T**HE neurologic aspects of backache will be discussed under the following headings:

1 Traumatic lesions of the spinal column and cord

2 Diseases of the spinal column, cord, and adjacent tissues

### Traumatic Lesions of the Spinal Column and Cord

*Fractures of the spinal column* constitute about  $3\frac{1}{2}$  per cent of all fractures. They are most common in the cervical region and are about equally frequent in the dorsal and lumbar zones. Injuries to the spinal cord itself occur in about 40-50 per cent of the cases of trauma to the spinal column. The principal cause of these injuries is a fall from some height, and it is this fall that gives rise to the cord lesions. The latter occur at the points where the relatively fixed dorsal spine meets the more movable lumbar and cervical spine. One finds, therefore, the most frequent spinal lesion at the seventh cervical to the first dorsal in the cervical zone, and at the twelfth dorsal to the first lumbar in the lower zone.

One of the sequelae of trauma of the spine is *Kümmel's disease*. Schmorl considered this disease an osteoporosis. Others have ascribed it to degeneration following vascular lesions of the bones. Some

authors believe that it develops on the basis of a vertebral fracture. It is important to remember that this disease may follow very mild trauma and is of interest to the neurologist because it may give rise to a compression syndrome or may increase previously existing spinal symptoms.

One must also remember that in some cases, following injury to the spine, tuberculosis may develop, which may simulate Kümmel's disease. In this connection it is worth emphasizing that the intervertebral disc is involved in the tuberculous lesion, whereas it is not implicated, as a rule, in cases of Kümmel's disease.

*Traumatic arthritis of the spine*, or spondylitis deformans, has been described by G W Schmidt, Raphael Lewy, Putti, Steinman, and Wagner. Most of these authors, however, believe that the arthritis pre-existed, and was simply aggravated by the trauma. On the basis of his own experience, the writer is in accord with this view. Trauma may lead to ankylosis of the spine. The chief clinical symptoms are the radicular pains.

Another group of diseases of the spine following trauma includes the *herniations of the nucleus pulposus*, first described by Schmorl. The prolapsed disc makes

pressure upon the cord and gives rise to root phenomena. This phase of our subject will be discussed in greater detail by the succeeding speakers.

Diory described a post-traumatic *camplocornia* or *hysterical kyphosis* which disappeared under suggestive therapy. There may be a modicum of organicity in these cases, namely, traction on the longitudinal ligaments.

One must recall, too, the occasional *fractures of the spinous and transverse processes* which are accompanied by root pain. This may be due to hemorrhages around the nerve roots or in the sheaths of the nerve roots. The secondary radicular pains and sensory disturbances may occur long after such fractures of the transverse and spinous processes have healed.

It is also important to record in this connection the compression fractures that occur incidental to the use of metrazol in the treatment of mental illness.

*Comotio Spinalis* is a frequent phenomenon in cases of spinal injury. There have been many references to this subject in the literature. It may appear in the guise of a level lesion of the cord. A characteristic of this condition is its spontaneous and rapid disappearance. One must bear in mind in this connection that microscopically demonstrable changes can be reversible. These consist of tiny hemorrhages, softening, and changes in the ganglion cells. There may also be circumscribed areas of edema, which soon disappear. In such cases, the sensory disturbances (especially in pain and temperature) disappear first; motor power returns later, while the reflexes may remain altered for some time.

Hemorrhages in the cord may be multiple and perivascular in type, based on the mechanism suggested by Ricker, namely, vasomotor palsy with stasis and diapedesis of red cells. The more important group are the larger hemorrhages occurring in tubular form and extending through many segments of the cord. Sometimes as many as eight to ten segments may be involved. These hemorrhages have been ascribed by Gold-

scheider, Flatau, and others to the loose structure of the gray matter. They are the characteristic *hematomyelias* that follow trauma to the spine. They usually recede in large part and may leave only residual atrophies with fibrillations, and mild disturbances in pain and temperature sense.

There are also secondary hemorrhages following trauma, either of the capillary type or in the form of larger areas of hemorrhagic infiltration due to post-traumatic malacia and necrosis. The spinal fluid, in cases of traumatic softening, may show the presence of blood or its derivatives. This has been ascribed to fragility of the vessels of the meninges.

The *aggravation of symptoms* that occurs as a late sequel of trauma is ascribed to meningopathies due to organization of hemorrhage or inflammatory exudate. These express themselves in severe radicular pains and hyperalgesias. Foerster believes that late vasopathies with perivascular disintegrations are a factor in these aftereffects. He has described syndromes simulating combined system disease, based on this mechanism. Lhermitte, Foerster, and Marburg described cases in which the posterior columns were more involved than the lateral columns, thus giving rise to pseudotabetic syndromes. Marburg found that the pathologic changes in the cord often extended over a long period, and that even after three years compound granular cells were demonstrated in the foci of disease. One might also refer, in this connection, to the cases of meningitis serosa circumscripta which may follow trauma to the spine. The writer saw one of these cases operated upon by Foerster years after the initial trauma. At the time of operation, cystic accumulations of yellowish fluid were found. These were evacuated and the patient obtained symptomatic relief. In such cases, the introduction of lipiodol would be helpful in demonstrating the site of these areas of cystic arachnoiditis.

In cases of *fracture of the spine* with signs of a transverse lesion to the cord, the clinician is often put to it to determine whether or not the patient is to be

operated upon. There is no clinical sign that is pathognomonic of complete section of the cord. Neither flaccid paralysis, defensive mass reflexes, nor Babinski can be considered pathognomonic, although they are serious symptoms and signs. Slow plantar flexion of the little toes, which can be observed in some of the cases, suggests a bad prognosis.

The spinal cord does not possess the property of regeneration. In cases of severe injury to the cord we find within a few days, in addition to the level signs, edema of the lower extremities, early decubitus, and, when the lesion is high up in the cervical zone, we encounter priapism. This symptom complex, together with severe bladder symptoms, constitutes presumptive evidence of complete loss of continuity of the cord. Under such conditions no treatment is of any avail.

After the initial period of shock has passed, i.e., after twenty-four to thirty-six hours, treatment should begin and should consist of reduction of the fracture, or laminectomy, if manometric block is demonstrated. Foreign bodies, spicules of bone, and blood clots must be removed from the spinal canal. If the conservative method of treatment is applied immediately after the injury and no improvement occurs within one to two weeks, an exploratory laminectomy is indicated. Cases of severe injury with complete transverse lesions of the cord usually succumb promptly to complications (sepsis from decubitus or ascending infection of the genitourinary tract).

### Diseases of the Spinal Column, Cord, and Adjacent Tissues

*Diseases of the spinal column* may give rise to backache due in part to radicular irritation. These lesions include myeloma of the spinal column, which may be single or multiple, primary disease of the spinal column, such as tuberculosis, and secondary or metastatic disease. The latter are most frequently due to primary lesions either in the mammae, prostate, thyroid, or bronchus. Adenocarcinoma of the bronchus has frequently been over-

looked as a cause of metastatic disease of the spine, and the writer wishes to emphasize this clinical fact.

As an example of myeloma of the spine, I should like to cite a case.

*Case 1*—M. W., a retired merchant, seen by the writer on December 11, 1936. His illness began three years previously with pain between the shoulders, so that he could not straighten up. At first this pain was not aggravated by coughing, sneezing, or straining and would disappear for months at a time. About a year later the pain in the back returned. The general medical examination was negative. X-ray examination of the spine and chest also yielded normal findings. The electrocardiogram was negative, but in spite of this fact he was treated for angina pectoris.

For a year the patient's symptoms subsided, but just prior to his visit to my office the pain returned. Physical examination revealed no abnormalities in the neural status except for diminution of the abdominal reflexes and considerable tenderness over the upper dorsal spine. Percussion of this region gave rise to a "shock" extending down the lower extremities. The patient also complained of a subjective feeling of "pins and needles" in both lower limbs. On one occasion while he was hurrying for a train, his legs suddenly gave way. There were no bladder symptoms at any time. Blood count and urine and gastric contents all showed normal findings. He later developed paraparesis and level signs. He was finally operated upon, a myeloma of the spinal column was found at the fourth dorsal vertebra. It was extradural.

*Tuberculous lesions of the spine* are usually accompanied by pachymeningitis, which gives rise at first to root pains and later to level phenomena. The x-ray findings, with or without the presence of gibbus and with the usual implication of the intervertebral disc, make the diagnosis. In many of the cases we find manometric block with xanthochromia of the spinal fluid.

In the cases of metastatic disease of the spine there is usually severe pain due to radicular irritation, in many of the cases the neurologic findings are scanty. They may consist simply of diminution of one or more of the deep reflexes. In some cases, however, the signs of extramedullary compression with level phenomena are encountered.

Another cause for pain in the back is the condition known as *epidural abscess*. This is usually part of a staphylococcus sepsis with either a metastatic deposit in the spine, leading to secondary epidural infection, or a direct metastatic deposit in the epidural tissues. In such instances, we usually obtain a history of a primary skin lesion with subsequent development of low grade sepsis, the demonstration of the staphylococcus in the blood, the incidence of metastatic foci in the kidney (carbuncle of the kidney), and finally the formation of a metastatic focus in the spine or the epidural tissues.

We had occasion to observe such a case recently on the Neurological Service of Bellevue Hospital.

*Case 2*—The patient was a 38-year-old housewife who was admitted on July 22 1938 with the chief complaint of pain in the right arm. There was a history of chronic osteomyelitis for the preceding twenty-eight years.

Three weeks prior to her admission the patient began to have pain in the right arm; this grew progressively worse. She was admitted to the hospital with a temperature of 103 F. X-ray examination of the right arm revealed an elevation of the periosteum just below the neck of the humerus. She was operated upon on July 23 1938; pus was found in the deltoid bursa. The patient exhibited a low grade septic temperature and the wound continued to drain. On August 13 she developed a metastatic abscess in the left thigh. This was also incised and drained. Culture of the pus revealed the presence of staphylococcus. Blood culture at that time proved negative but the patient was given a transfusion of 500 cc. of blood. On August 28 she complained of inability to void and weakness of both legs. She soon developed complete paraplegia, anesthesia below both knees and mass reflexes in the lower extremities. Knee and ankle jerks were very sluggish.

It was our impression that we were dealing with a metastatic extradural abscess and compression of the cord. Lumbar puncture revealed xanthochromic fluid which clotted spontaneously. Protein content was 100 mg per cent. Initial pressure 140 mm. of water with no rise upon jugular compression (manometric block). There was tenderness over the ninth and tenth thoracic vertebrae.

Laminectomy revealed an osteomyelitis of the lower dorsal spine and an epidural abscess. Drainage was instituted. Following the lam-

nectomy, the level sign increased for a time. There was complete paraplegia with a sensory level at the twelfth thoracic vertebra, and bladder incontinence. Culture of the spinal fluid revealed the presence of staphylococcus. The patient gradually recovered bladder function. The sensory disturbances receded gradually. Motor function improved slowly but progressively and the patient is now out of bed.

It is important to remember that an old syringomyelia may be aggravated by trauma owing to hemorrhage into the pre-existing cavity. The writer had occasion to observe such a patient some years ago at Mt. Sinai Hospital. The patient was said to have had an old poliomyelitis. Following a fall downstairs, he developed signs of a level lesion in the cervical zone. There was no evidence of manometric block, but in view of the level signs, operation was carried out. Nothing was found on the surface but aspiration of the cord yielded a bloody fluid. The patient subsequently was admitted to Montefiore Hospital and finally succumbed. At the postmortem examination there was found an old syringomyelia.

Pain in the back may also be caused by *tumors of the spinal cord*. They first give rise to root irritation and later exert pressure on the cord. In many of these cases the root pains have been erroneously interpreted as being expressive of visceral disease, and patients have been operated upon for assumed lesions in the abdomen. This has also been the case in some individuals with tabetic crises. A careful neurologic examination in such instances will serve to establish the neurogenic origin of the symptoms.

Tumors of the cauda equina are particularly apt to give rise to radicular pains in the lower limbs, lower motor neuron paralysis with loss of the deep reflexes, and occasional bladder symptoms. Spinal fluid studies in these cases usually reveal xanthochromia with massive coagulation. Occasionally one obtains no fluid, owing to complete filling of the lower part of the spinal canal by the tissue mass. In such cases spinal puncture at a higher level or the cisternal injection



tion of lipiodol is a helpful diagnostic aid

In the differential diagnosis, one must consider lesions of the conus. In conus lesions there is a dissociated sensory paralysis (involving pain and temperature), as opposed to the radicular type of sensory disturbance in lesions of the cauda. The sphincters are more apt to be involved in lesions of the conus and one usually finds a completely relaxed anal sphincter. It is also important to stress the fact that the sensory disturbances in lesions of the cauda may extend upward beyond the third lumbar root.

Occasionally seeding metastases are found in the cauda equina, secondary to certain tumors of the brain, particularly medulloblastoma of the vermis. They give rise to radicular pains and the symptoms of a lesion in this region.

Occasionally one encounters a lesion in the pelvis, making pressure upon the nerve roots after they have emerged from the spinal canal. These lesions are the chordomas of the pelvis (tumors taking origin from remnants of the notocord and particularly apt to occur either at the clivus in the skull, or in the sacral zone). We had an opportunity to observe such a case through part of her illness.

*Case 3*—The patient was a 52-year-old housewife, who was first seen by the writer in May, 1930. During the winter of 1929, she developed pain in the lower spine, radiating toward the left hip. The pain was worse when she was lying down and was not aggravated by coughing or sneezing. She was treated with baking and obtained relief. At that time the neural status was entirely negative except for mild sensory disturbances in the distribution of the first lumbar root on the right. There was no evidence of a primary focus of malignancy. There were no signs of cord compression, the diagnosis of spondylitis with radicular pain was made.

In April, 1936, a mass was discovered on the left side of the sacrum, palpable on rectal examination. She consulted the writer on April 24, 1936. There was weakness in the left lower limb, especially in the gastrocnemius group, there was wasting of the hamstring groups. A suggestive Lasègue was found. The left knee jerk was diminished, and the left ankle jerk was absent. Lumbar puncture yielded normal findings.

Owing to the absence of evidence of a lesion

in the spinal canal, and the presence of a mass on the left side of the pelvis, it was our impression that we were probably dealing with a polyradicular lesion involving the lumbosacral roots, and that this lesion was probably a bony disease of the pelvis (chordoma). The patient was operated upon and the lesion was found too extensive to be attacked surgically. The patient subsequently succumbed, and the diagnosis of chordoma was confirmed.

At times trauma will aggravate a pre-existing tabes dorsalis and reactivate the lesions, thus giving rise to root irritation.

The writer would like to stress the importance of bilateral sciatic pain as a symptom of primary or secondary disease of the spinal column. If a "diabetic neuritis" can be excluded, the incidence of stubborn bilateral sciatic pain is suggestive of metastatic disease of the spine. This is especially true of the cases in which no additional signs of lesion of the cauda equina make their appearance. In such cases one may find only diminution of one or more of the deep reflexes in the lower extremities. Careful x-ray studies of the spine and of the chest may reveal both the primary and the metastatic foci.

I had an opportunity to observe recently a case of pain in the dorsal zone in a colored woman who was admitted to the Neurological Service of Bellevue Hospital, with the signs of a Brown-Séquard syndrome. X-ray examination revealed the presence of a knife blade in the spinal cord.

Finally, I should like to mention a very unusual case of pain in the lower back that may be of some medicolegal interest.

The patient was a 30-year-old carpenter who for many years had had a lipoma in the region of the left hip. During his work one day he bruised this mass. It became infected and drained pus. Soon afterward he developed pains in the lower limbs, weakness, and, within a few days, signs of a diffuse meningitis. Lumbar puncture revealed purulent fluid from which was recovered the staphylococcus aureus. It is quite likely in this instance that the infection traveled via the perineural pathways from the original site of infection to the central nervous system and thus led to the widespread invasion of the nervous system.

1192 Park Avenue

## HERNIATION OF THE NUCLEUS PULPOSUS AND HYPERTROPHIED LIGAMENTA FLAVA

DAVID M. BOSWORTH, M D , and CLARENCE C. HARE, M D , New York City

*(From the Orthopedic Service of St. Luke's Hospital, New York City)*

FOR reasons of brevity, the literature will be disregarded and the following made a personal report. Since December, 1937, 19 patients whose histories fall in fairly identical channels have been investigated, and the above lesions found in 18 of them. Investigation was carried out first with very grave misgivings and relative infrequency, and later with more confidence and less trepidation. A rather broad experience with low back injuries over a number of years has impressed the writer with the fact that many patients complaining apparently honestly of certain subjective symptoms showed no orthopedic objective findings to justify their complaints. For this reason neurologic consultation has preceded investigation in every case. Dr. Clarence Hare has studied most of the cases and the remainder have been examined by Dr. Irving Pardee. Litigation present in some cases was absent in others and yet the cases patterned in a mold. The question was frankly recognized as being a possible nerve root irritation due to mechanical causation and, therefore it was felt that the abilities of both the neurologists and orthopedic surgeons should be combined to secure the greatest knowledge and the best results. For the purposes of this paper and because of the short postoperative period, we shall not report results but will try to correlate history, examination, and operative findings. It must be apparent to all that investigation would have soon been dropped had the indications of success in the majority of cases not shown themselves.

A typical clinical picture of a posterior herniation of a nucleus pulposus with nerve root irritation from pressure is rather classic, although misleading factors may tend to confusion. The patients may be of any race, although to date no

Negroes with the lesion have been encountered in this series. Pain is the chief symptom and in every instance has been referred to a buttock with or without extension to the posterior thigh and calf, sometimes spreading toward the anterior aspect of either or both. Tenderness over the painful area is generally absent or slight. Except in acute cases, lumbosacral pain is at a minimum and is generally disregarded by the patient. The pain is persistent and continuous to some extent from the time of onset. Acute attacks frequently occur, at which time the picture is that of sciatic scoliosis (occasionally or slightly more than half have had symptomatology on the right, but bilateral distribution has not been encountered). The pain is generally accentuated by coughing, sneezing, or by sudden increasing of intra abdominal pressure. The mechanism of this is probably transmitted spinal fluid pressure due to suddenly increased intracranial venous pressure. All motion of the spine is occasionally limited, but frequently hyperextension alone will cause increased pain, and occasionally there is no limitation of spinal motion. It is probable that the frequency of cases encountered at present is due to the fact that they have existed unrecognized for many years and we are now adequately diagnosing and caring for the numbers that have accrued in the past, much as a mass of infantile paralysis victims must be reconstructed following any epidemic. When we have cared for those that have gone unrecognized, the new cases may be infrequent.

The greatest number of cases occur between the ages of 30 and 45, although they have been encountered as young as 20 and as old as 50. Over three fourths have been men and we are inclined to investigate women more critically. No

typically free rupture has been found among women. All their lesions to date have been of the chondromatous type, of which we shall speak later. One third of the cases have been complicated by litigation, compensable insurance, or otherwise, but such litigation has not seemed to influence the outcome to date. All patients have been active in manual labor or occupations except 2, who were of sedentary pursuit but received their injuries attempting unusual activity. Four cases were complicated by other pathology—1 by a gastric ulcer, another by an osteoma of the spine above the level of the hernia, and 2 by biliary tract disease. Several cases, however, showed moderate evidences of degeneration, such as hypertrophic arthritis, calcified bursae elsewhere, etc. Pelvic or rectal examinations have been routinely done and were negative except in the 1 case where no hernia was demonstrated. In this case prostatic pathology was present. All patients had had treatment directed toward sciatic neuritis, arthritis, lumbosacral strain, etc., without relief. Several had had manipulations, which made them worse. One had had a concomitant lues, considered the cause of pain and neurologic changes, and had been treated without relief. One patient had had an injection of the sciatic nerve, which markedly complicated the picture, temporarily paralyzed the sciatic distribution, and failed to relieve pain. In 1 instance, with a diagnosis of the nucleus lesion already made, twenty-two teeth were extracted for pyorrhea at the instigation of a physician. Relief was not afforded thereby. Heat, traction, medication, diathermy, stretching, bedrest, chiropractic treatments, osteopathy, massage, vitamin therapy, and mechanical support had all been tried in various cases to no avail. We have reason to believe that a few cases of spine fusion that have been unrelieved may have herniated nuclei, and we intend to investigate these.

The onset, in all except 3 proved instances, coincided with trauma to the spine of varying severity. The trauma

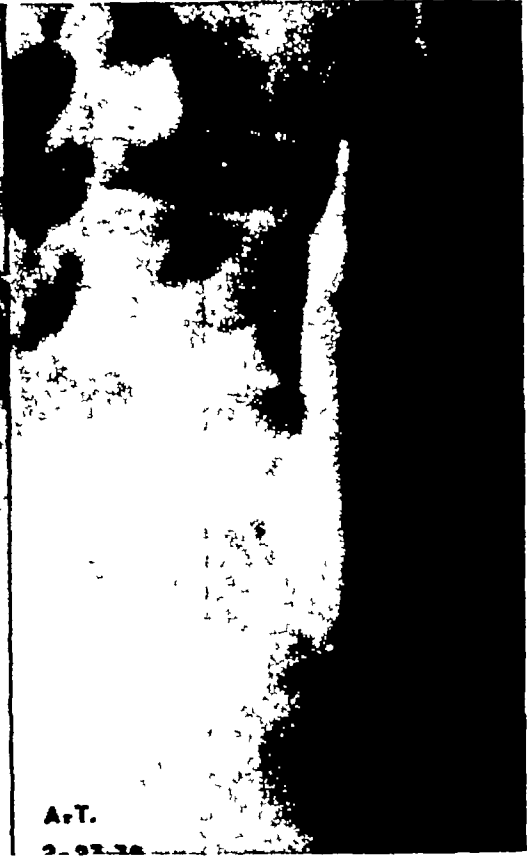
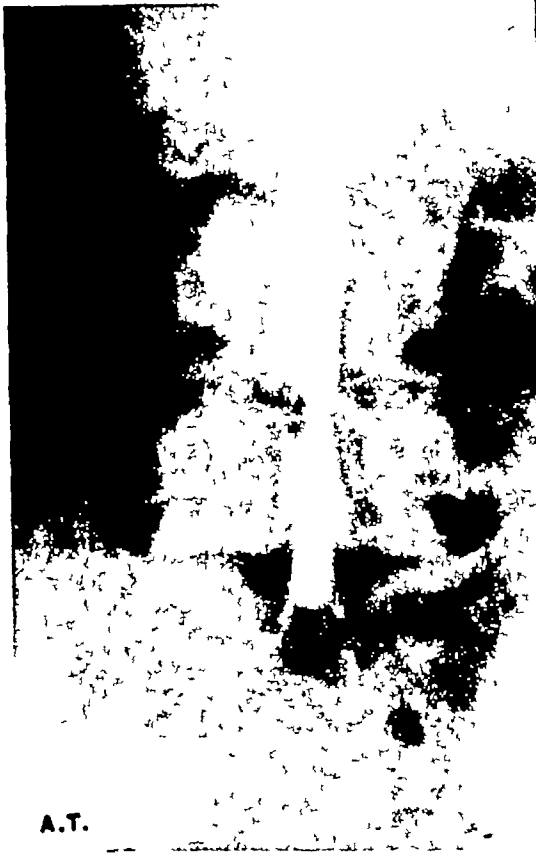
was generally direct, such as a fall on the buttocks or a snap of the back while in hyperextension, such as occurred with the slipping of a foot while carrying a heavy crate in the arms. It also occurred following manipulation of the lower extremities during childbirth, from shoveling snow, or from the simple pulling of a sled. There was generally a definite instance that the patient clearly remembered, but in 3 cases in which hernias were found operatively, there was absolutely no trauma remembered and the development was slow and progressive. The shortest duration was two months, 2 cases had persisted for fifteen years each, and the average was four and one-half years. One patient whose symptoms had existed for fifteen years had been treated by over twenty doctors and had spent an average of three months a year in a hospital bed, having had innumerable attacks of sciatic scoliosis. As has been stated, due to the lack of objective findings and the obscurity of the diagnosis, no case has been operated upon without a preceding first-class neurologic examination and opinion concurring in the necessity of such operation. Frequently neurologic decision to acquiesce in surgery has depended finally upon lipiodiagraphy findings, no objective pathology being demonstrable. In other words, the man's complaints have alone been present. Due to this, one third of the cases had been diagnosed as malingerers, neurotics, fakers, etc. Upon one occasion the examining neurologist made a notation that whereas the patient claimed total disability for the previous five years, he had managed to have five children within that time, which in itself tended to negate claims of low back disability. This notation was reversed by lipiodiagraphy and a typical herniation was found and removed and relief of symptoms to date secured. Typical neurologic findings when present, in order of importance, consisted in loss or decrease of an ankle jerk, atrophy of thigh or calf, reduction or loss of knee jerk, or an area of anesthesia. The latter finding was rarely present and if present was small



H.I. 537 On March 2 the patient had typical symptomatology and clinical findings of herniated nucleus. Thinning of disc between fourth and fifth lumbar and sclerotic adjacent borders of vertebrae were too great for nuclear herniation. The remaining annulus fibrosus would have held the bodies apart. By March 31 x rays show destruction typical of tuberculosis.

and localized to the foot. Reflex changes have been seen to vary on repeated examinations, loss or decrease being an inconstant finding. Fixed scoliosis, limitation of straight leg raising, sciatic or lumbosacral tenderness, weakness of the peronei muscles, loss of hyperextension of the spine, and accentuation of pain on coughing or straining were frequently present, but, due to the possibility of mutation and active willful simulation, cannot be accepted at their full face value. No case gave a history of back pathology previous to the clear-cut onset of the present lesion. Spinal tap was done in all cases following neurologic examination. Manometric findings were negative in every instance. It is noteworthy that on two or three occasions dry tap was encountered at the exact level of the lesion, although fluid was obtained above or below it. The explanation of this was probable occlusion of the needle point by the herniated mass. Protein, if above 50, is extremely helpful, but in only 4 instances of the present series was it so elevated. On all other occasions it varied from a low of 12.5 to a high of 48.5. Clearly the protein cannot be relied on to rule out this lesion. Cell counts varied from 0 to 4 per field. Spinal or blood Wasser-

manns were negative in every instance including the treated luetic case. Flat x rays were never diagnostic. Frequently they were confusing in that they showed what have in the past been considered gross mechanical lesions, such as antero-posterior facets, narrowing and sclerosis of the fifth lumbar disc, sacralization of the last lumbar segment, etc. A suggestion of narrowing of the third or fourth lumbar disc has frequently been present at the site of a lesion later demonstrated. No gross narrowing of an intervertebral disc should be present, if present, it should raise a warning against the diagnosis of herniation in favor of some other lesion, such as tuberculosis. This is particularly true if sclerosis or atrophy of the adjacent bodies is present, or associated hypertrophic changes can be seen on the anterior vertebral margin. Lipiodolography x rays should be taken both anteroposterior and lateral. Although some hold that the anteroposterior view is the most diagnostic, at present we rely more on the lateral projection. A definite defect in the anteroposterior view, of course, is certain evidence but the suppression of a nerve root filling shadow should also make one suspicious. Lateral projection must be taken with the pa-



A T 514 Typical appearance of posterior herniation between the fourth and fifth lumbar both in the anteroposterior and lateral views. It is rare to get x-ray findings so clearly diagnostic. Note that thinning of fourth disc compared with third is slight.

tient supine, gradually raising the thorax between x-ray exposures to flow the heavy lipiodol slowly from the region of the first lumbar downward until each intervertebral space of the lumbar area has been clearly outlined or a block secured. While fluoroscopy is interesting, with the above outline of all the intervertebral spaces in lateral profile, few cases should be missed. A normal posterior bulge of the annulus fibrosis is sometimes present opposite each disc but is accentuated by a hernia, and this area, if compared with those above and below, will show that the column of lipiodol has not only been indented further, but has generally been lifted off the posterior surface of the body above the involved disc for a variable distance. General constriction of the column opposite a disc has been found to accompany herniation plus hypertrophy of the *ligamentum flavum*.

Such hypertrophy is probably due to injury at time of the herniation or to the subsequent irritative response. A varying amount of hypertrophy of the *ligamentum flavum* was found operatively in 8 cases.

We feel that lipiodol should not be injected promiscuously and not at all unless definite plans have been made for the operative removal as completely as possible in every case. All patients are warned before injection that operation will be necessary—a short one if defect is not found, in order to remove the lipiodol, and a longer one if defect is exposed, to remove the lipiodol and the defect. We feel that operative findings have clearly shown fresh adhesions within the dura present within two or three days after injection with lipiodol. This feeling is further borne out by the fact that x-rays must be done immediately following

lipiodol installation to get the smoothest flow and the best pictures. Within a day or two the lipiodol column will appear scattered and not confluent, indicating intradural adhesions breaking up the column of fluid. While the incidence of irritation due to lipiodol is reported as low, all danger incident to its presence should be avoided as much as possible by early removal. For this reason lipiodology is followed by operation on the same or the next day. Removal at operation by us has always been incomplete. The bulk of injected oil has been removed, but remnants frequently of some size are left behind. There have been no cases injected with lipiodol not included in this series. Accuracy of diagnosis before injection has been 94 per cent, and the real result of lipiodology has been to definitely localize the lesion.

With the clear picture of symptomatology confirmed by neurologic examination and the lesion localized by lipiodology, skin marking by intracutaneous dye injection, lead marker and x ray, operation is prepared for. Anesthesia by spinal novocain or avertin nitrous oxide has proved preferable to cyclopropane because of apparent increased bleeding with the latter. All operations have consisted of laminectomy over the lesion leaving the articular facets in place, and transdural removal of the lesion. The procedure is technically difficult and takes between fifty minutes and two and one-half hours. It should not be undertaken without extensive experience in spinal work. The procedure is peculiar in that an hour may be spent in hard, meticulous work exposing the lesion with a final few seconds of drama when the lesion is removed. Removal of the arch and spinous processes of two or three segments leaving the articular facets behind has not seemed to destabilize the patients backs. In 1 instance an articular facet was broken off and removed and in this 1 instance alone mechanical local symptoms were present. No cases of shock were encountered.

Herniations were found and removed



H. W.  
3 25-39

H. W. 513 Double indentation of lipiodol column with herniation found opposite third disc. Note that column of lipiodol is raised from the posterior surface of third body where herniation was, but not from the fourth body. The fourth disc is apparently normal.

in 15 instances of the 17 spines exposed. In 2 instances due to faulty placing of the x ray marker, the lamina below the lesion was removed. In both of these, the patients symptoms were relieved by the removal of the *ligamentum flavum* from the under surface of the lamina above, apparently decompressing the nerve root as it passed over the herniated material. The radiculitis and pain result, not from bowing of the nerve around a mass, but from pinching of the root between the mass and *ligamentum flavum* or bony vertebral arch. This would suggest simple laminectomy, leaving the herniated mass in place. To date we have not dared to do this intentionally. The herniated lesions appeared in two classes. Half were of the usual type, in which a coiled fragment of nucleus 1 or 1½ inches long by ¼ inch or less in diameter was re-

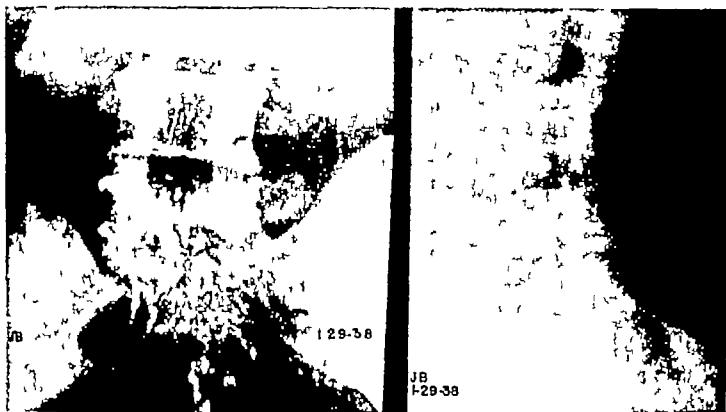


C M 506 Herniation found at fourth disc with marked hypertrophy of ligamentum flavum, causing compression of lipiodol column in hourglass fashion

moved in one piece. Almost all of these fragments were solidly attached to the posterior annulus fibrosis at one end, requiring sharp dissection to free them. The other type consisted of a chondromatous mound (the chondromas of Elsberg), which required removal piecemeal. Changes in the position of the patient on the operating table by flexion and extension tended to make the mass change in prominence. In 1 instance a clearly palpated mass disappeared for no apparent reason, again reappearing before closure, enabling removal. In all instances an opening at the base of the herniation communicated freely with the intervertebral disc. X-ray therapy post-operatively is used to limit deep scar formation. The length of hospitalization has been from fifty days in early cases to

twenty-one days at present, and all patients were ambulatory without brace or support on discharge.

Complications have arisen. One death occurred, apparently due to prolonged nitrous oxide anesthesia. The patient, though warm, dry, and with good pulse, never regained consciousness and died in about twenty hours. Symptoms have recurred at the present time in 1 case. Bladder and rectal dysfunction, but not paralysis, associated with moderate saddle anesthesia, is still present in 1 instance, six weeks following operation. Transient bladder retention of from twenty to forty-eight hours has occurred frequently, associated with mild saddle anesthesia, but all rapidly cleared up except the 1 case mentioned above. Loss or depression of knee jerks and ankle jerks has not been



J B 484F Postlaminectomy showing intradural lipiodol removed, but epidural injection remaining *in situ*. Case asymptomatic at full laborious work.

an uncommon finding, but these appear to be regained. Sciatic pain has been relieved in all instances except those mentioned above. Atrophy, when present preoperatively, has disappeared in the earlier cases. Spinal weakness following laminectomy may later prove a complicating factor but to date has not appeared so. Postoperative headache occasionally occurs but it is amazing that with the massive spinal drainage done it is not usually seen. In 1 instance a silk suture granuloma beneath a healed skin wound forced removal of the deep stitches

### Conclusions

- 1 This lesion must be suspected from a typical history, final proof resting upon lipiodology and surgery
- 2 Elevation of serum protein is not always present.
- 3 Removal of such a lesion, while necessary, is dangerous and will be followed in some instances by undesirable sequelae.
- 4 Any case presenting unusual history, examination findings, or x ray variations is likely not to belong to this group of lesions.
- 5 Laminectomy per se does not seem to markedly weaken the spine function

ally if the articular facets are left intact

### Additional Discussion by Dr Hare

A study of cases with verified herniations of a nucleus pulposus is of particular value, for in them we have some means of correlating symptoms with pathologic changes, in some cases even without any objective abnormal neurologic signs. It seems quite important to emphasize the train of symptoms in these cases. The history of the sudden onset of pain in the low back, the sensation of something snapping in the same area, the sudden loss of power in one or both legs for a few minutes' time, the fact that these occur in a previously well individual and that they occur while shifting the spine from flexion to extension with some twisting motion, or a sudden fall on the feet or back, is most important.

It is also important to remember that the pain may then subside and recur after a variable period of time, usually within a few weeks, and then radiate down the back of one leg. This pain may then subside spontaneously or with nonoperative treatment, after a few weeks' or months' time. Unfortunately, however, it recurs oftentimes after the patient has been told he is cured. The sciatic pain,





J W 507 Partial suppression of L4 nerve root shadow Typical herniation removed at operation in spite of small changes in lipiodol column in both views The suppression of the L4 nerve root was constant on changing the patient's position and trying to refill the defect

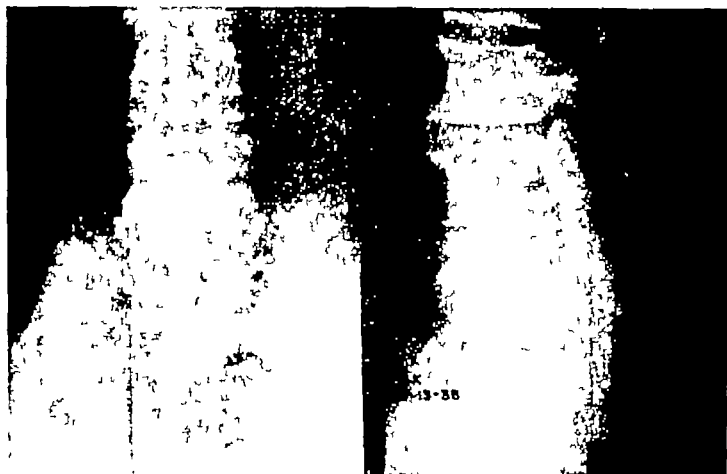
which appears to be a universally common symptom, is so severe he is unable to work.

In considering these cases in which the herniation occurs between the fourth lumbar vertebra and the fifth lumbar vertebra, which form the major portion of this group, I would like to emphasize further that in some few of them there are no abnormal neurologic signs even on carefully detailed examination months after injury. There are, of course, signs of pain on leg-raising movements. In some few other cases the neurologic signs are minimal and consist of a slight reduction of the achilles reflex on the affected side, or slight diminution of sensation over the lateral and dorsal aspects of the foot, or slight atrophy of the thigh muscles. In other cases these signs are pronounced, so that the achilles reflex is lost, or sensation is quite diminished, or the atrophy quite pronounced.

I have had the opportunity to examine most of the cases in this series from the

neurologic standpoint. Two of the patients I considered hysterical because I was unable to find any abnormal signs and because of the variability of the pain. In 1 man the pain was so severe that any leg movement while he was lying in bed produced an expression of great pain. I then had him walk and after doing so told him to dress. He sat on the edge of the bed, bent forward, flexed and lifted his legs, pulled on his shoes, tied the laces—and all this without any sign of pain. He was relieved of his pain after the removal of a large herniated nucleus pulposus between the fourth and fifth lumbar vertebrae. The variability of the pain in that particular case, as well as in others, appears quite definitely to have been related to the positions of flexion or extension of the spine.

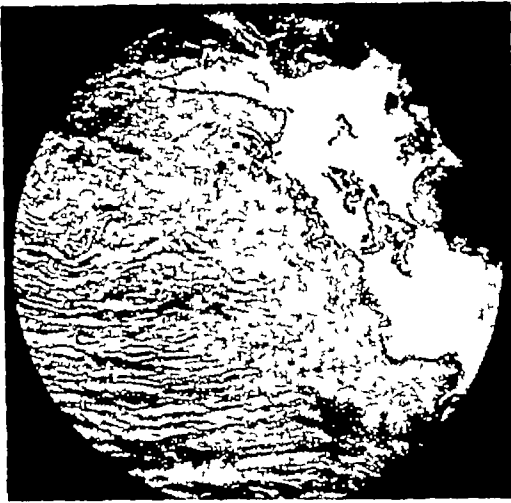
Another patient who had severe pain on any leg movement while lying in bed and who claimed he had had this pain for some months, told me upon question-



C. K. 510B Sacralization of the last lumbar vertebra with fusion of two years duration and no relief of symptoms showed complete defect in lipiodol column opposite the fourth disc. Duration and constancy of symptoms would tend to rule out tumor but herniation has not definitely been proved due to refusal of operative permission



J W 507B Postlaminectomy showing the amount of lipiodol that can be removed at operation.



490B Photomicrograph showing degenerative changes in herniated material

ing that he had continued his habit of having sexual relations with his wife several times each week. This statement, in relation to the fact that I was unable to find any abnormal neurologic signs, led me to the belief that his pain could not be real. However, he was relieved of it after removal of a herniated nucleus pulposus.

In the other patients I examined, the diagnosis of a herniated nucleus was made before lipiodol was introduced into the lumbar sac. The value of lipiodol appears, however, to more than balance its disadvantages, inasmuch as it gives definite proof of the diagnosis and permits the surgeon to find the herniation by removal of only one vertebral lamina. In

1 case an extradural injection of lipiodol was followed by extension, apparently along the nerve sheaths, but actually in the soft tissues of the buttocks outside the sheaths. An intradural lipiodol injection followed this with notching, indicating a herniated nucleus. Removal of this has alleviated all symptoms, even though the extradural lipiodol remains.

There is only one other fact that I should like to stress, which is important. The orthopedic surgeon, in attempting to remove a herniated nucleus, may be working in a field with which he is anatomically unfamiliar. In most cases the posterior and anterior surface of the dura must be opened and the nucleus removed from between the nerve roots of the cauda equina. Since nerve tissue is very susceptible to any trauma and may repair very slowly at best, extreme care must be used in handling the nerve fibers. It requires slow and careful work, if serious consequences are to be avoided, some of which may be much more detrimental to the patient's welfare than the pain caused by the herniated nucleus. The surgeon who has not the patience nor the skill to handle tissues without trauma should not undertake this operation.

I should like, in closing, to congratulate Dr. Bosworth on having completed his operative work on this group of patients without any major signs of nerve tissue damage. I should furthermore like to congratulate him on the splendid moving pictures for which he and his brother deserve sole credit.

### Correspondence

#### *To the Editor*

I am in receipt of a letter from the Times Sale Company, Chicago, Ill., regarding a gentleman by the name of H. E. Stanton alias H. E. Smith who is swindling doctors in this state at the present time.

On August 14th he came into my office soliciting subscriptions for the Times Company—a check was given this gentleman, and then the check was cashed with improper endorsement and

fictitious name. However, payment was stopped.

The Times Company report that he is a "swindler" using forged credentials. He is a smooth character, and the Times Company asked me to notify the JOURNAL about this swindler.

Sincerely yours,

RUDOLPH RUEDEMANN, JR., M.D.

256 State Street  
Albany, N. Y.  
August 21, 1939

# AN UNIDENTIFIED MICROORGANISM RESEMBLING *B. LIGNIERI* AND *PAST PSEUDOTUBERCULOSIS*, AND PATHOGENIC FOR MAN

JOSEPH I SCHLEIFSTEIN, M D, and MARION B COLEMAN, Albany, New York

(From the Division of Laboratories and Research New York State Department of Health Albany New York)

THE incitants of disease in wild and domestic animals are assuming an increasingly significant role in human medicine, and several authenticated instances of infections in man with *Past pseudotuberculosis* and *B. lignieri* have been reported.<sup>1-7</sup> While cases of human disease attributed to these particular incitants have not been encountered in New York State, microorganisms with certain of the properties of both these species, but differing from each, have been associated with infections in 5 patients. The morphologic, biochemical, cultural, and serologic characters of the 5 strains are identical.

## Clinical Data

*Case 1*—The first culture was received in 1923. The data in regard to it indicated that the microorganism had been isolated from a chronic granuloma on the chin of a carpet worker. The lesion was ulcerated and indurated and the associated cervical glands were enlarged and tender. The patient ran a moderate fever. With proper drainage, the lesion gradually healed.

*Case 2*—The second culture was received in 1934 and had been isolated from a glanders like infection by McIver and Pike.<sup>8</sup> The patient a widow 53 years of age, who was living on a farm had a carbuncle on the left cheek four weeks before admission to the hospital. On admission there were two inflammatory ulcers on the left side of the face and several sinuses discharging white pus. The regional cervical lymph glands were enlarged and tender. The lesion was adequately drained and treated with wet dressings, exposure to sunlight and ultraviolet radiation, and x-ray therapy. The course of the infection is reported as extraordinarily chronic and indolent the lesion healing only after four months.

*Case 3*—The third strain, received March 17, 1938 had been obtained at autopsy from an intestinal ulcer in a young boy who had died with acute enterocolitis.

*Case 4*—The fourth culture was isolated from a specimen of feces received on December 24 1938 from a female child 4½ years of age. When first seen, she was thought to have typhoid fever the diagnosis was later changed to acute appendicitis. On removal at operation the appendix appeared inflamed, as did also about 5 inches of the terminal ileum. The patient had a stormy postoperative course, with high temperature of the septic type, and for a time was nearly moribund. However she gradually recovered and was able to leave the hospital. When last seen she was slowly convalescing but was in bed weak and anemic.

*Case 5*—The fifth culture was isolated from two specimens of feces received in January 1939 from a female child 1 year old. The patient was being fed on a canned milk formula. The history indicated that at the time the first specimen was collected the child had been severely ill for four days with acute enteritis diarrhea and vomiting she was unable to take nourishment and fluids had to be forced. The second specimen was submitted fourteen days after the onset of the disease the patient still had diarrhea and fever. Twelve days later she had completely recovered except for an occasional elevation of temperature and considerable mucus in the stools.

## Bacteriologic Study

The microorganism is a motile, Gram negative rod with a tendency to bipolar staining. Considerable morphologic variation is exhibited on different types of culture media. Coccoid forms about the size of staphylococci and short rods are found in eighteen hour cultures on blood agar. Bacillary forms with definite polar bodies predominate in eighteen hour cultures on a modification of Endo agar.<sup>9</sup> Stained with Loeffler's alkaline methylene blue, they bear a striking resemblance in size and form to *Cornebacteria*. On beef-infusion agar the rods are thicker than on

TABLE 1—RESULTS OF ANIMAL TESTS

Number of Mice	Date of Inoculation	Infecting Material	Death	Pathologic Findings	Culture Recovered from
<b>Intraperitoneal inoculation</b>					
3	1-16-39	Organ suspension from infected guinea pig, 0.1 cc	2-2 days 1-3 days	Peritonitis, milary nodules in liver, spleen, lungs, and kidney	Peritoneal exudate heart's blood
1	3 27 39	18 hour broth culture 0.15 cc	1-2 days	Periorchitis in 1 Peritonitis milary nodules in liver, spleen, lungs and kidney	Peritoneal exudate
<b>Subcutaneous inoculation</b>					
3	1-16-39	Organ suspension from infected guinea pig, 0.1 cc.	2-6 days 1-19 days	Abscess at site of injection enlarged inguinal and peritoneal lymph nodes, milary nodules in liver, spleen, lungs, and myocardium Nodules in myocardium in 1	Peritoneal exudate heart's blood
<b>Feeding experiments</b>					
2	1-16-39	Organs from infected guinea pig	2-9 days	Pentomitis	Heart's blood, in testinal contents
2	2-4-39 2 23 39	Organs from infected guinea pig	1-10 days 1-20 days	Pentomitis	Heart's blood, in testinal contents

Endo agar, with rounded ends and some tendency to bipolar staining

Motility is observed in hanging drops of broth cultures, and flagella can be demonstrated in preparations stained by Gray's method,<sup>10</sup> when the cultures are grown at room temperature but not when they are incubated at approximately 37 C

Cultures develop readily under aerobic conditions on plating media employed for the isolation of bacillary incitants of enteric disease—beef-infusion agar without enrichment, desoxycholate citrate,<sup>11</sup> eosin methylene blue,<sup>12</sup> and a modification of Endo agar.<sup>9</sup> After eighteen hours' incubation, smooth opaque colonies vary from the size of a pin point to about 0.5 mm in diameter, and from 1 to 2 mm after longer incubation. Rough colonies with crenated edges develop very readily and are larger and more translucent than smooth colonies.

In Russell's double sugar medium, an acid reaction is produced in the butt only, or in the butt and slant, and usually there is evidence of gas only after incubation for two days.

The 5 strains have identical biochemical reactions, and all are agglutinated in the same dilution as the homologous strain in serum produced in a rabbit with one of them. Strains designated as *B. lignieri* and *Past. pseudotuberculosis* received from other laboratories are not agglutinated in the serum. In sera pro-

duced with a strain of *B. lignieri* and with one of *Past. pseudotuberculosis* there was no agglutination with any of the other available strains of these species, nor with the strain under consideration.

### Animal Inoculation

The microorganism is highly virulent for mice, infection being easily established by intraperitoneal injections of culture or organ emulsions from infected animals. Death usually ensues within two to three days. Subcutaneous inoculations also result fatally. Mice fed with organ emulsion of infected animals succumbed in from nine to twenty-six days (see Table 1).

Virulence for laboratory animals other than the mouse is variable. The guinea pig is easily infected by the intraperitoneal route, but subcutaneous inoculation and the feeding of infectious material had no effect. The white rat is only moderately susceptible. Two rabbits inoculated intravenously were sacrificed more than two months later and showed no evidence of infection. A third rabbit, chloroformed and autopsied two weeks after intraperitoneal inoculation, showed gross lesions resembling those in mice and guinea pigs. This animal, however, had an infection in one eye incited by another microorganism, which may have increased its susceptibility.

All animals dying from the infection show an interesting postmortem ap-

pearance. The findings in the mouse may serve as an example. At autopsy, wasting and emaciation are observed. There is frequently a local induration at the site of intraperitoneal injection. Inguinal and peritoneal glands are usually enlarged. The peritoneum shows a granular, whitish exudate. Most strikingly characteristic are the numerous milky necrotic nodules varying in size from a pin point to areas from 3 to 5 mm in diameter. While scattered throughout the peritoneal cavity and on the diaphragm, these nodules have always been found beneath the capsule of the liver and spleen and throughout the parenchyma of these organs. Minute nodules were also occasionally observed in the lungs and kidney, the intestines, and the adrenal. Some of the mice showed a definite periorchitis. An abscess commonly developed at the site of subcutaneous inoculations. Mice infected by feeding usually had ulceration of the intestinal mucosa with extension throughout all coats. Film preparations of the nodules from the various organs, as well as from the peritoneal exudate, showed large numbers of thick, Gram negative bacilli, usually associated in clumps, occasionally as diplobacilli. Some of the bacilli showed a clear halo, but no definite capsule.

Guinea pigs infected with these microorganisms developed lesions similar to those in the mice. A striking finding in male guinea pigs was a severe periorchitis (Strauss reaction). Between the layers of the tunica vaginalis there was an extensive exudate containing numerous nodules. These have the same characteristics as observed in the other organs.

Cultures maintained on the usual artificial media tend to lose their virulence within a comparatively short time. Thus, freshly isolated cultures and tissue from infected animals have been frozen and dried<sup>13</sup> in the hope that virulence will be maintained by this means. The first two cultures were virulent when received but became nonvirulent after two or three months on artificial media. The third was not found to be pathogenic when received. The pathogenicity of the last two

strains has been readily maintained by feeding mice with spleen from a previously infected animal.

### Histologic Examination

The histologic changes were strikingly similar in all infected animals and were characteristic but not specific. In the experimental infection the process consists of a granulomatous lesion or nodule which is distributed irregularly but always found in the liver and spleen. Under low magnification these lesions are seen to contain a central irregular granule or granules, which superficially resemble an actinomycotic granule. Surrounding this central mass is an area of inflammatory granulation tissue that is generally undergoing necrosis. When more highly magnified the central granules are disclosed as aggregations of Gram negative bacilli in the early lesions, and an amorphous, hyaline pink staining material in the older ones.

The peripheral zone consists of a variety of round cells interspersed with necrotic detritus. Polymorphonuclear leukocytes are present in the lesions in varying numbers but are not predominant. The area immediately surrounding the granules is composed of necrotic chromatin fragments of various sizes and shapes, ghost cells, pale-staining nuclei, and amorphous pink staining material. Toward the periphery of the lesions there is a proliferation of fibroblasts forming a zone of new connective tissue, scarlike in appearance. This connective tissue does not, however, prevent the lesions from spreading. Here and there within this zone, developing lesions penetrate and involve new tissues. Frequently two or more nodules develop close to each other, the intervening zone of connective tissue then tends to disappear and the foci fuse into a large lesion.

When death occurs soon after infection, the lesions consist almost entirely of aggregations of bacteria without much cell accumulation.

### Discussion

The species of bacteria to which the microorganism we have studied is ap-

TABLE 2—COMPARISON OF MOTILITY AND OTHER PROPERTIES\*

Properties Compared	N Y State Unidentified 5 Strains	Reactions Obtained with		
		<i>B lignieri</i>	<i>Past pseudotuberculosis</i>	<i>B whitmorei</i>
Motility	+ at 20 C - at 37 C	Variable	Variable	+
Gas production	+	Variable	—	—
Gelatin liquefaction	—	—	—	+
Reaction in milk	Weak acid	Variable	Alkaline	Acid coag brown whey
Indol production	+	Variable	—	—
Fermentation reaction				
Dextrose	Acid	Acid	Acid	Acid
Maltose				
Mannitol				
Lactose	Acid—slow	Variable	—	Acid
Saccharose	Acid	Acid	—	Acid
Dulcitol	—	—	—	Acid
Rhamnose	—	Variable	Acid	No information

\* Data compiled from reports in the literature and studies made in this laboratory

parently closely related are primarily incitants of disease in animals. The clinical manifestations, including abscess formation, in the first 2 cases were strikingly similar. They differed radically from those in the last 3 instances in which the symptoms were those of an enteritis.

The etiologic significance of this species in human disease requires further study. The fact that all 5 strains are identical, and have been closely associated with infection in man suggests, however, that it is not an accidental relationship. Morphologically, culturally, and biochemically these microorganisms have many characteristics in common with *B. lignieri* and *Past. pseudotuberculosis*. Comparative data have been summarized in Table 2. The pathogenicity of these 3 species differs also. While *Past. pseudotuberculosis* is reported to be highly pathogenic for rabbits, the 2 rabbits inoculated intravenously with the microorganism we have been studying showed no signs of infection.

The pathogenicity of *B. lignieri* for small laboratory animals is still debatable. Griffith,<sup>14</sup> Magnusson,<sup>15</sup> and others report negatively, Lignières and Spitz<sup>16</sup> affirmatively. The latter also describe a characteristic periorchitis in male guinea pigs inoculated with suitable amounts of culture intraperitoneally but not in mice.

Beaver and Thompson,<sup>7</sup> in experiments with a strain of *B. lignieri* (actinobacillus) isolated from a human patient, illustrate lesions in animals that resemble those produced by the cultures we have studied. They report, however, that the rabbit is highly susceptible to the actinobacillus,

while mice are practically insusceptible.

Fedorova and Lalazarov<sup>17</sup> describe a Gram-negative, encapsulated, Pasteurella-like microorganism isolated from a spontaneous epidemic among mice in the outskirts of Astrakhan. It was nonmotile and failed to ferment saccharose or to produce indol, thus differing in these respects at least from the strains we have studied. The cultures were highly pathogenic for mice, but had no effect on rabbits, pigeons, or rats injected by various routes.

### Summary

A study has been made of 5 strains of a motile Gram-negative bacillus with a tendency to bipolar staining, obtained from lesions about the face in 2 patients, from an ulcer in the intestines of a third, and from the intestinal contents of 2 others. The 3 last-mentioned patients had symptoms of enteric disease.

The microorganism has morphologic and some cultural and biochemical properties in common with *B. lignieri* and *Past. pseudotuberculosis*, but differs materially from each of them. It is pathogenic for some of the small laboratory animals, particularly virulent for mice. A characteristic but nonspecific granulomatous lesion is produced in these animals. In male guinea pigs inoculated intraperitoneally, a periorchitis (Strauss reaction) results.

The fact that mice are readily infected by feeding suggests the possibility that rodents may serve as a reservoir for the microorganism.

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## DEMOLITION MELANCHOLIA

It may seem strange that people who have lived for years in slums are sorry to leave them but it has been actually found in England that some folks forced out of old tenements by slum clearance projects have developed melancholia, to the point of trying suicide. An assistant medical officer of a Sheffield mental hospital Dr F. T. Thorpe tells in the *British Medical Journal* of women removed from slum areas who have had hallucinations of the roof falling in of burglars and murderers trying to enter the windows of mysterious voices in the air poison in the food etc. etc. He remarks that he has recently been impressed by the occurrence of a number of cases of depression in which the onset was clearly attributable to the unwilling expulsion of the patient from a lifelong home such as sometimes occurs under the compulsory slum clearance scheme. It is doubtful whether local authorities fully realize that not infrequently there is a profound emotional shock when elderly people are compelled to leave a residence in which they may have lived for twenty years or more. They are then rehoused in a new estate of lonely roads, where they find it difficult to overcome the initial feeling of the emptiness of life. It is not surprising therefore that many instances of mental depression occur occasionally necessitating admission to a mental hospital

A case in point is sketched as follows

A man aged 70 was admitted as a voluntary patient with a history of mental depression for some months and recent thoughts of suicide. Until two years previously he and his crippled wife lived contentedly in a slum quarter of the city where it was his custom to go out for daily walks in a near by park and shopping center. He had lived in this house for twenty-seven years when it was scheduled for demolition under the Housing Act and he was rehoused on a new estate in the suburbs. He found his new residence too quiet and he felt miserable because he had nothing to pass the time away and few neighbors to talk to. He stayed in the house for the first three weeks and when he ventured out for walks he found the district too hilly to go very far, there was nothing in the immediate neighborhood to interest him. He had varying periods of mild depression until five weeks before admission when he suddenly became intensely depressed and contemplated cutting his throat with a knife. On admission he was mildly depressed and very sorry for himself. He had good insight into his condition and there were no delusions or hallucinations. His physical health was fair and his family and personal history negative. He is now rapidly recovering his normal cheerfulness.

## HUMAN HIBERNATION

Dr Temple S. Fay and Dr Lawrence S. Smith of Philadelphia exhibited at the St. Louis meeting of the American Medical Association moving pictures illustrative of a new idea in medical treatment notes the *Virginia Medical Monthly*. They showed persons undergoing what has been termed human hibernation a state achieved by subjecting nude patients to a pack of cracked ice in a cool room fanned by electricity. The rectal temperature drops to 89 degrees and it is said that this temperature can be maintained for four or five days after the ice is removed if the room is kept cool.

Persons who submit to this procedure are said to become pleasantly drowsy and to remain so until awakened five days later with hot drinks and hot applications. They then have no recollection of the period of treatment. During this time the heart continues to beat regularly

the metabolism slows 10 or 20 per cent the kidneys stop functioning the stomach and intestines quit working and there is a general period of rest for somatic cells. Subjected to such an altered environment bacteria seem to suffer more than the host they infect.

Most promising of all it is claimed that cancer cells are not only slowed up in their growth but may afterward show inability to grow again. This method of treatment is now being suggested as a means of arresting hopeless cancer and as the treatment of heart disease and insanity and of such bacterial diseases as tuberculosis.

Like all innovations it must await the test of time. In the meantime the public should not be misled by newspaper publicity and the medical profession should go slowly in reaching its own independent conclusions.



# AN EVALUATION OF THE LAUGHLEN TEST IN THE DIAGNOSIS OF SYPHILIS

A Report Based on 2,005 Tests

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**I**N 1935, Laughlen<sup>1</sup> introduced a flocculation test for syphilis for which he claimed simplicity of performance and accuracy, and recommended it as suitable for routine use by the general practitioner in his office. Robinson and Stroud<sup>2</sup> in 1937, and Price,<sup>3</sup> also in 1937, corroborated Laughlen's findings. They, too, recommended the test for general use.

The essential feature of the Laughlen test is the special antigen. This is prepared from Kahn's antigen by the addition of cholesterol, balsam, and scarlet red dye. The dye, which is insoluble in water, stains the lipoids of the antigen, and when flocculation occurs, the stained clumps become readily visible. The reaction is, therefore, easy to read.

The preparation of the Laughlen antigen is rather complicated. This constituted a difficulty in the general introduction of the test. In 1937, however, a pharmaceutical concern made the antigen available in a stable form. From this stable antigen, active antigen for use in performing the test can be readily prepared.

According to the sponsors, the test has numerous advantages. It is simple to perform, it does not require any special technical skill in its performance, the results can be read in a few minutes, it can be read with the naked eye, the test does not require inactivation of the serum, the active antigen is stable for seven to ten days and can be made available at a moment's notice, and withal, to quote the sponsors, "accuracy has not been sacrificed to secure speed or simplicity."

If these claims can be substantiated, this test will indeed become a valuable addition to the serodiagnostic methods now employed in syphilis, since the average physician could perform the test in

his office and have an immediate check on his clinical diagnosis, also hospital interns could use the test for donors in emergency transfusions, small laboratories could substitute it for the more complicated methods, and large laboratories might use it in all urgent cases.

Laughlen<sup>1</sup> reports that 400 routine specimens examined according to his method showed an agreement with the Wassermann test in 98 per cent of the cases and in 99 per cent with the Kahn test, in 118 tests of cases receiving anti-syphilitic treatment, the agreement was 93½ per cent and 97 per cent respectively. Robinson and Stroud,<sup>2</sup> in 1,000 routine tests made on general hospital patients, found that it agreed with the Wassermann test in 93 per cent and with the Kahn test in 97 per cent of the cases. Price<sup>3</sup> made 257 comparative blood examinations and concluded that the test compared very favorably with the Wassermann and Kahn tests. All the above-mentioned authors recommended the Laughlen test for use by physicians and even by those who had had no special training in serology. It should be noted that the reported studies were all done under laboratory conditions which, as a rule, cannot be duplicated in the physician's office.

The reliability of a given serodiagnostic test for syphilis is, of course, of paramount importance, since so often one has to depend on the test alone in diagnosis. Most of the tests in use now are quite reliable when properly performed. For a new test to be acceptable, it must prove itself at least as accurate as the older tests.

As stated, the Laughlen test was intended by its author for use in the physician's office, but, so far as we know,

no report has appeared as to its reliability when made under such conditions. We therefore undertook the present study under conditions comparable to those in a doctor's office or in a small laboratory.

Our material consisted of patients attending the Central Social Hygiene Clinic of the Department of Health of New York City. Approximately half of the specimens examined were taken from patients under antisyphilitic treatment. The other half were of new patients, including untreated cases of syphilis, old and fresh cases of other venereal diseases, and also persons without any clinical or serologic evidence of the disease. Altogether we performed more than 2,000 Laughlin tests, and these were compared with the routine Wassermann tests done on the same specimens. The Wassermann tests were performed by the Serologic Laboratory of the City of New York.

### Technic

With slight modifications, we followed the directions given by the manufacturer of the antigen. The equipment for the test is very simple. It consists of antigen capillary pipettes, slides, control sera, and a special 'dark field illuminating box'. The box makes the reading of the test more convenient, but for all practical purposes an ordinary electric lamp and a piece of black paper are equally good. The stable antigen as supplied by the manufacturer has to be activated by the addition of 10 per cent sodium chloride solution, and the mixture kept at room temperature for at least a period of twenty-four hours before use. In the first series of tests, we added, according to the directions of the manufacturer, 0.15 cc. of the saline solution to each cc. of the antigen; subsequently, the amount of saline solution was increased to 0.20 and 0.25 cc. The reason for this change will be explained later. The capillary pipettes were carefully calibrated, those used for measuring sera supplied twenty-five drops of water per 1 cc., while those used for measuring antigen supplied thirty-two drops of water per 1 cc. Different sized pipettes were used because an excess of

serum is preferable for the reaction. Instead of plain slides advocated by Laughlin, we employed standard Kline slides with paraffin rings. Thus, up to 12 tests could be performed simultaneously. The advantage of the rings is that they prevent the drops from spreading over too large a surface, which makes shaking unsatisfactory. As controls, pooled sera, strongly positive (Wassermann 4 plus and 3 plus), weakly positive (1 plus) and negative, were used.

The blood was collected by venipuncture in the usual manner, allowed to coagulate, and the serum was separated from the clot. One half of 1 cc. of the clear serum (free from red cells) was pipetted off, and this was used in performing the test. The serum was employed either fresh or after inactivation by heating in a water bath at 50 C for twenty minutes. The test was performed by placing into the well of the Kline slide one drop of serum and one drop of antigen from respective pipettes. The slide was then rotated on a flat surface for ten minutes. Care must be exercised in the pipetting and the shaking of the mixture. The progress of the reaction was watched by looking through the slide held near a strong artificial light against a dark background. A positive reaction manifests itself by the formation of red clumps in a previously homogenous turbid fluid. With the progress of time, the clumps increase in size, and the surrounding fluid becomes transparent and colorless. A reaction occurring within a period of five minutes is considered strongly positive, one occurring between five and eight minutes, weakly positive, and one occurring between eight and ten minutes, doubtful. Negative sera change very little during the ten-minute period of observation. Occasionally, they show coarse granulations. These can be confused with weak clumping that is observed in some positive reactions.

### Results

Although the Laughlin test as described above is a rather simple procedure, our experience with it shows that a certain

TABLE 1

Section	Laughlen Wassermann	Wassermann Positive Sera			Total	Wassermann Doubtful Sera			Total	Wassermann Negative Sera			Total	Total Absolute Agreement
		+	±	-		+	±	-		+	±	-		
A 356		+	+	+	148				3				205	
Unheated sera														
0 15 cc 10% NaCl to 1 cc of anti-														
gen		67	15	66				3		12	4	189		
Absolute agreement		45%						0%				92%		72%
B 369					168				7				194	
Unheated sera														
0 20 cc 10% NaCl to 1 cc of anti-														
gen		99	7	62		1		0		53	7	134		
Absolute agreement		59%						0%				69%		63%
C 517					249				13				255	
Heated sera														
0 15 cc 10% NaCl to 1 cc of anti-														
gen		148	5	96				13		14	5	236		
Absolute agreement		59%						0%				93%		74%
D 570					278				9				283	
Heated sera														
0 20 cc 10% NaCl to 1 cc of anti-														
gen		170	14	85				1		13	5	205		
Absolute agreement		64%						11%				94%		78%
E 193					128				0				59	
Heated sera														
0 25 cc 10% NaCl to 1 cc of anti-														
gen		113		15		1	1	4		15		44		
Absolute agreement		88%						16%				75%		82%

+—positive  
±—doubtful  
—negative

amount of technical skill in its performance is necessary. This technical skill is only acquired by repeatedly performing the test. Proper pipetting, proper shaking, and many other seemingly unimportant details have a definite influence on the results. Weak positive reactions are at times difficult to distinguish from the granulations observed in negative sera. The readings require a certain amount of training of the eye to the reaction. Not until we had performed approximately 300 tests were we confident of our results. These tests, of course, are not included in our final summary.

Section A, Table 1 summarizes the findings in a series of 356 tests done according to the original directions of the manufacturer, i.e., unheated sera were employed, and the antigen was activated by adding to each cc of reagent 0.15 cc of 10 per cent saline solution. The table shows a marked disagreement between the results obtained with the Wassermann test and with the Laughlen test. The disagreement is due almost entirely to the low sensitivity of the latter. Only 67 of 148 Wassermann positive sera showed a positive Laughlen test, i.e., 45

per cent. The total agreement of the reactions was 72 per cent.

It has been demonstrated by Laughlen that the addition of larger amounts of saline solution to the antigen increases the sensitivity of the test. However, if the amount is too large, the test may show many false positive reactions.

In the following series of tests, the amount of saline solution (10 per cent) was increased to 0.20 cc to each cc. of the antigen. Section B, Table 1 shows the results when the antigen was so modified. It will be noted that the sensitivity of the test was increased, 99 of 168 Wassermann-positive sera were positive with the Laughlen test, an agreement of 59 per cent. However, the number of positive Laughlen tests in Wassermann-negative sera was markedly increased, up to 53 out of 194, confirming the opinion of Laughlen in respect to false positive reactions when larger amounts of saline solution are used. The total agreement was 63 per cent.

It is evident that these results are hardly satisfactory. A modification of technic seemed warranted. This was attempted by the use of heated sera, and it

was discovered that heating the sera not only improved the specificity of the test, but its sensitivity as well. In a series of parallel tests with heated and unheated sera, we encountered a number of syphilitic sera that gave negative results before inactivation and strongly positive after inactivation. The reverse did not occur. In several cases an interesting phenomenon was observed: on mixing unheated serum with the antigen, definite clumping appeared after two or three minutes, but after a further period, the clumps dissolved, and the appearance was that of a completely negative reaction. These same sera after inactivation gave a strongly positive reaction. Some inhibitory substance, which interferes with the clumping of the antigen, seems to be present in the unheated serum. This substance is probably destroyed by heating. Inactivation, therefore, would appear to be necessary in making the Laughlin test more reliable. Wiener<sup>4</sup> had a similar experience in connection with the Kline test.

Section C, Table 1, shows the findings with heated sera, with the addition of 0.15 cc. of 10 per cent saline solution to each cc. of the antigen. The results in this series of 517 tests were definitely more accurate (compare section A of the same table). There were 148 positive Laughlin tests in 249 Wassermann positive sera, or 59 per cent. There were 14 positive Laughlin tests in 255 Wassermann negative sera, or 5 per cent. The total agreement was 74 per cent. However, even these results are far from satisfactory.

By increasing the amount of saline solution to 0.20 cc. to each cc. of the antigen, better agreement was obtained (Table 1, section D). There were 179 positive Laughlin tests in 278 Wassermann positive sera, or 64 per cent. The total agreement in the 570 cases was 78 per cent.

In the last series of 193 cases (Table 1, section E), the amount of saline solution was further increased to 0.25 cc. to each cc. of the antigen. The results in this series, although still below those of

Laughlin and other investigators, are much more satisfactory. There were 113 positive Laughlin tests in 128 Wassermann positive sera, or 88 per cent. There were 15 positive Laughlin tests in 59 Wassermann negative sera, or 25 per cent. The total agreement was 82 per cent.

A summary of the 2,005 tests performed shows that there was an agreement between the two tests in 1,476 cases (74 per cent). The 529 tests that did not agree are analyzed in Table 2, which definitely indicates that the Wassermann test is more sensitive and more specific (see section A of the table) than the Laughlin.

We also attempted to determine the stability of the antigen. By tabulating the results according to the age of the antigen, we found that an undersensitive antigen, e.g., antigen activated by addition of 0.15 cc. of the saline solution to 1 cc., is relatively stable. The sensitivity of such an antigen increased slowly from day to day, but even on the eleventh day it was not markedly different from that on the first. If, however, the antigen was sensitive at the outset (activated by the addition of 0.25 cc. of the saline solution to 1 cc.), it proved to be much less stable. Such an antigen became oversensitive in forty-eight to seventy-two hours.

To avoid the usual delay in the preparation of the antigen, we made a few attempts to accelerate its 'ripening' by heating the freshly activated antigen in a water bath at 37 C for fifteen, thirty-, and sixty minute periods respectively. This had no effect on making the antigen more suitable for use.

### Comments

1 Following the original directions given by the manufacturer of the antigen, the Laughlin test proved unreliable. However, there are indications that under proper conditions and with properly adjusted antigen, good results may possibly be obtained. These conditions have to be carefully determined and tested out before a wider use of the test can be ad-

TABLE 2 — 520 CASES IN WHICH THE LAUGHLIN AND THE WASSERMANN TESTS DISAGREED

Section	Laughlin Wassermann	Laughlin Test More Sensitive Than Wassermann			Laughlin Test Less Sensitive Than Wassermann		
		+	+	±	±	-	-
A 66 cases without any clinical evidence of syphilis		29	10	3	15	9	
B 55 cases with a definite history of syphilis		7	1	0	40	1	
C 379 cases under anti-syphilitic treatment		2	65	8	26	255	23
D 29 cases—no clinical data obtainable		7	1	5	14	2	

vocated One of these requirements is that sera must be heated But even with heated sera, our results are still below those obtained by Laughlen and his corroborators

2 From a purely technical point of view, the Laughlen test has some advantages over other similar flocculation tests, e g, the Kline or the Ide test The preparation of the active antigen from the stock antigen is simple (provided the manufacturer carefully determines the optimum amount of saline solution required to activate a given lot) Readings can be made without a microscope or any magnifying device The Laughlen test seems to share two disadvantages with the other tests first, that the sera must be heated, and second, that a sensitive antigen remains stable for a relatively short time after activation In addition, the Laughlen has the disadvantage in that the antigen must be activated for at least 24 hours before use

3 In spite of the comparative simplicity of the test, we believe that none but qualified persons should perform it The mechanical technic can be easily mastered, but this is not sufficient to ensure accurate results Repeated controls, constant vigilance, and extended personal experience are essential for the proper performance of a serodiagnostic test, be it a complement-fixation or a flocculation procedure Those who use the Kline test, a test only somewhat more complicated than the Laughlen, know that it has pitfalls which only the experienced can avoid The same holds true for the Laughlen "The syphilo-diagnostic millennium" will be achieved

when "every practicing physician will be able to perform a microprecipitation test in his alcove" (Stokes<sup>5</sup>) The Laughlen test is a step in that direction, but is not a solution of the problem

## Conclusions

1 The Laughlen test performed as originally advocated by the manufacturer of the antigen does not give reliable results

2 Better results can be obtained by the use of heated sera and properly sensitized antigen

3 Until the conditions of its proper performance are determined and tested out, the test cannot be recommended for routine use

4 The Laughlen test cannot be recommended for use by physicians and other persons without special training in serology

Since the completion of this paper, a number of reports<sup>6,7,8,9,10,11,12,13,14,15</sup> have appeared in the literature Most of them find the Laughlen test satisfactory under laboratory conditions, but warn against its use by the unexperienced

Our gratitude is due to Mr John Koopman, serologist in charge of the Wassermann Laboratory of New York City for his valuable cooperation and advice

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## INDICATIONS FOR ESTROGEN THERAPY

Including a Preliminary Report on the Use of Two New Estrogen Preparations (Estradiol-Dipropionate and Diethyl Stilboesterol) and the Subcutaneous Implantation of Crystalline Estradiol-Benzozate

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EVER since the estrogenic hormones have become available in concentrated form, a vast literature has accumulated dealing with their therapeutic efficacy in a variety of apparently unrelated conditions. Unfortunately, all too frequently the reports are based on observations of symptomatic improvement in conditions from which psychotherapeutic effects cannot be excluded. It is of considerable importance, therefore, to pause for an appraisal of the therapeutic value of these widely used hormone preparations and to define the clinical indications for their use. In considering the clinical indications for the use of estrogens, it should be remembered that there are now available two extremely valuable methods of determining, objectively, both the presence of an estrogen deficiency and the efficacy of the therapy. These methods are (1) the human vaginal smear, and (2) the gonadotropic hormone excretion.

### The Human Vaginal Smear

Papanicolaou and Shorr<sup>1</sup> have demonstrated that the human vaginal secretions, after the menopause, exhibit certain striking cytologic characteristics. When properly stained, in a typical case, the secretion is found to consist of small, round or oval epithelial cells associated with a variable number of leukocytes (Fig 2), whereas, the vaginal smear of a woman with normal ovarian activity consists of large, squamous epithelial cells (Fig 1). Furthermore, if an adequate amount of estrogenic hormone is administered to a patient with the meno-

pause type of smear, the smear changes to that of the normal woman—the leukocytes vanish and the small epithelial cells are replaced by large, squamous epithelial cells.

Because of the rather complicated technique, the Papanicolaou method is not practical for office or clinic use. However, a simple staining method has been developed which makes it possible to obtain a reading in a few minutes.<sup>2</sup> We have been using this method routinely in all our endocrine cases. We thus have a simple, rapid, objective method of determining whether a patient is suffering from an estrogen deficiency and, by taking smears periodically while the patient is receiving estrogenic hormone treatment, we can estimate, objectively, the effectiveness of the therapy.

It is a well-established fact, in animals as well as humans, that after cessation of ovarian activity there is a hyperactivity of the hypophysis that is manifested by an increase in the amount of circulating gonadotropic hormone in the blood and excretion in the urine,<sup>3,4,5,6,7,8</sup> and that by the administration of adequate amounts of estrogens the hyperactivity of the hypophysis can be reduced.<sup>9,10</sup> We have available, therefore, in the determination of the urinary gonadotropic hormone output, an indirect method of determining the presence of an ovarian deficiency. By continuing the gonadotropic hormone assays while estrogens are being administered, the adequacy of the estrogen dosage can be ascertained when the gonadotropic hormone vanishes from the urine—indicating inhibition of the

hyperactive hypophysis While this determination is extremely valuable in regard to the appraisal of the patient's response to the treatment, it has the disadvantage of being time-consuming and requiring the facilities of a biologic laboratory The cytologic characteristics of the vaginal smear and the gonadotropic hormone excretion in the menopause have been correlated<sup>2</sup> so that one may assume that when the vaginal smear shows a complete estrogen effect after therapy (Reaction IV), the gonadotropic activity of the hypophysis has probably been reduced to a normal level

In our investigations, we have also used the endometrial and vaginal biopsies as indicators of the degree of ovarian deficiency The results of these studies are being reported elsewhere

### Estrogenic Hormone Preparations

At present the estrogenic hormone preparations are commercially available under a bewildering variety of names It does not fall within the scope of this paper to discuss, in detail, the chemical and biologic differences in the various estrogenic substances that are available in the market. However, a knowledge of some of these differences is essential for an intelligent understanding of these substances and their clinical application

MacCorquodale, Thayer, and Doisy<sup>11</sup> have established the fact that the pure ovarian follicular hormone is estradiol (dihydroxyestrin) This substance is prepared synthetically and is available for oral, vaginal, and percutaneous administration

It has recently been shown that the alpha isomer of estradiol is very much more active than the beta form<sup>12</sup> It has, furthermore, been found that the benzoic acid ester of estradiol is absorbed more slowly and excreted at a much slower rate and, for this reason, has a more sustained therapeutic effect The estrogenic substances available for clinical use are estradiol (dihydroxyestrin), estradiol-benzoate, estrone (ketohydroxyestrin), estriol (trihydroxyestrin), and emmenin Estradiol is available commercially as

"Progynon-DH" (Schering), estradiol-benzoate, as "Progynon-B" (Schering), estrone, as "Amniotin" (Squibb), "Theelin" (Parke-Davis), and "Estrone" (Abbott, Lilly) Estriol is available as "Theelol" (Parke-Davis) suppositories and oral capsules "Emmenin" (Ayerst, McKenna, and Harrison) is prepared from placenta and consists of glycuronate esters of ketohydroxyestrin and trihydroxyestrin The estradiol-benzoate and the estrone hormones are available in solution in sesame oil for intramuscular injections For oral administration, estradiol (Progynon-DH, Schering), estriol (Theelol, Parke-Davis) capsules, and emmenin (Ayerst, McKenna, and Harrison) are available As vaginal suppositories, estradiol (Progynon-DH, Schering), estrone (Abbott, Lilly), Amniotin (Squibb), and estriol (Theelol, Parke-Davis) are procurable

### Dosage

There is a great deal of variation in the designations employed by different pharmaceutical houses to indicate the hormone content of the commercial products The rat unit, international unit, and weight of the crystalline hormone are each used Inasmuch as these represent vastly different amounts of hormone, a great deal of misunderstanding and confusion arises from failure to appreciate this fact The League of Nations international unit represents 0.0001 mg of estrone (ketohydroxyestrin) The rat unit is the smallest amount of estrogenic hormone which induces estrus in a spayed rat There is, furthermore, a striking difference in the potency of the individual estrogenic hormones if we compare the biologic activity of equal weights of the pure crystalline hormones Thus, 1 Gm of estrone yields 1,000,000 R U, 1 Gm of estradiol, approximately 12,000,000 R U, 1 Gm of estradiol-benzoate, approximately 6,000,000 R U It has been estimated that 1 rat unit is equivalent to approximately 5 international units Because of the various standards that are employed to indicate the potency of commercial products, it is the



FIG 1 Normal vaginal smear showing typical large squamous epithelial cells full estrogen effect

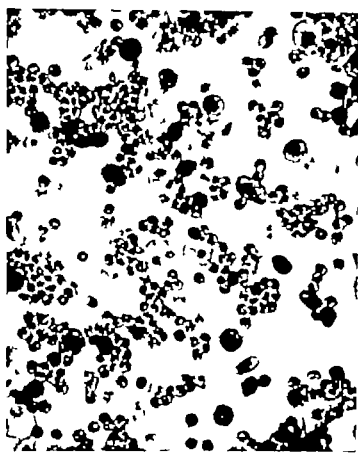


FIG 2 Estrogen deficiency smear showing atrophy cells and leukocytes. Complete absence of cornified cells.

responsibility of the physician to acquaint himself with the different types of "units" so that he may know actually how much active hormone he is administering

Our clinical investigations have been performed chiefly with estradiol (Progynon DH, Schering), estradiol benzoate (Progynon-B, Schering), emmenin (Ayerst, McKenna, and Harrison), and, recently, with estradiol dipropionate (Ciba) and diethyl stilboesterol (Squibb Ayerst, McKenna and Harrison)

### Clinical Conditions

*The Menopause Syndrome*—It is a well recognized fact that the clinical manifestations and intensity of symptoms in this condition vary markedly. There is also an amazing variation in the response of different patients to estrogens. The degree of estrogen deficiency undoubtedly varies in different individuals and, in addition, the degree of autonomic imbalance is probably equally variable. Because of the strong subjective factors in these cases, it is misleading to rely upon the patient's evaluation of im-

provement alone if one is attempting an accurate appraisal of the pharmacologic effectiveness of the preparation administered. The vaginal smear, for this reason, is of great help, inasmuch as it indicates the approximate degree of estrogen deficiency and the response to the hormone. Occasionally there is a lack of correspondence between the intensity of the symptoms and the degree of regression manifested in the smear. The smear may indicate a slight or moderate degree of estrogen deficiency, yet the symptoms may be very severe. This is probably due to an inherent autonomic instability which registers in the form of marked vasomotor symptoms. Generally, if the vaginal smear is a I or II, indicating advanced estrogen deficiency, the indications are for concentrated therapy. Such patients should be started immediately with large doses (10,000 R.U., three times weekly). Smears should be taken at three-day intervals and when the smear shows a full estrogen effect (Reaction IV), the dosage can be diminished to 2,000 R.U., three times weekly. It is important to con-



tinue the intramuscular injections for at least four weeks after a full estrogen effect and complete subsidence of symptoms have occurred, in order to effect a complete and prolonged inhibition of the hypophysis and to establish a store of estrogens in the body. The continuation of the estrogens is important, since previous studies have shown that if small doses are given, very shortly after the cessation of therapy the hypophysis becomes hyperactive again.<sup>2,9</sup> In cases that have only moderate symptoms and whose smears show only a slight degree of regression (Reaction III), 4,000 R U, three times weekly, may be adequate. It is important to remember that the dosage should be increased if there is no definite amelioration within a week. Not infrequently patients are encountered who fail to respond to this dosage. In some cases it was found necessary to increase the dosage to 30,000 R U, three times weekly, for several weeks. There is a small group of patients who fail to respond satisfactorily to even these large doses. Some of these patients react more favorably to androgens (testosterone propionate). It has been shown that the excessive gonadotropic excretion in a human female castrate can be inhibited and the menopause symptoms relieved with testosterone propionate as well as with estrogens.<sup>16</sup> The exact role of androgens in the therapy of the menopause will be discussed elsewhere.

The question arises as to the subsequent course to be followed. If the estrogens are discontinued, almost invariably the symptoms recur. This parallels the re-appearance of excessive gonadotropic hormone in the urine,<sup>9</sup> and the regression in the vaginal smear.<sup>1,2</sup> It is advisable to put all such patients on a maintenance oral dose of estrogen, immediately after the cessation of the course of injections, in order to keep them symptom-free. We have found that if these patients are given a concentrated course of estrogens for four weeks (10,000 R U estradiol-benzoate, three times weekly), they can thereafter be kept free of symptoms with a normal estrogenic smear, on 1,200 to

1,800 oral units of estradiol per day. It has previously been shown that the natural menopause cases respond satisfactorily, also, to emmenin in adequate doses.<sup>27</sup> We have found that the flushes and other annoying symptoms are kept satisfactorily under control with 1,000 Collip units, three times daily, as maintenance therapy. This high dosage was made possible through the use of a concentrated preparation of emmenin containing 1,000 units per cc.

*Senile Vaginitis*—The smear in these cases reveals the most advanced degree of estrogen deficiency (Reaction I). Most striking results are obtained by giving 10,000 R U, three times weekly, supplemented with estrogen suppositories (2,500 R U estradiol per suppository, every night). Improvement is noted within forty-eight hours and symptoms are completely controlled at the end of a week or ten days. Vaginal biopsies before treatment in these cases reveal almost complete atrophy of the mucous membrane, the epithelial layers being reduced to one, two, or three rows of cells, with patches of ulceration or inflammatory infiltrations. Although the symptoms are controlled at the end of a week, our histologic studies have revealed that the regeneration is still incomplete and that cessation of therapy results in a recurrence of symptoms in a few weeks. It is advisable to continue the treatment for four weeks after complete subsidence of symptoms. Thereafter, one vaginal suppository (2,500 R U), twice weekly, is sufficient to keep the vaginal mucosa in a normal physiologic state.

*Pruritus Vulvae, Kraurosis*—Pruritus vulvae is one of the most annoying and intractable symptoms associated with the menopause. Clinically, there appears to be 2 types of cases. In one group the pruritus is associated with other menopause symptoms and the vulva grossly appears normal. In another group, the women are older, usually ten to fifteen years after the menopause, do not have menopause symptoms, and the vulva usually reveals either marked

atrophy of the labia or early kraurotic changes. Such patients require intensive constitutional estrogenic treatment which should be fortified with local inunctions with an estrogen ointment. We have found 200 R U estradiol per Gm of lanolin base (Progynon DH Lanol) applied nightly, very helpful. Refractory cases may require a higher estrogen concentration. In the kraurosis cases, particularly, 1,000 R U estradiol per Gm is to be preferred. After the usual course of estrogens, administered intramuscularly, the ointment should be continued for six months. Four cases in our series have been under observation for more than five years. The pruritus is under control while the patient is using the 200 R.U. per Gm estrogen ointment, but discontinuation of the applications results in recurrence of the symptoms within a few weeks. Such patients should be seen at intervals of one or two months in order to determine the local condition and status of the vaginal smear. Should evidence of regression appear in the smear, another course of intramuscular injections should be given.

Although it has been shown that estrogens are absorbed by the skin,<sup>12, 14</sup> not enough is absorbed by this route to keep the patient adequately saturated. And it seems that in order to keep the patient symptom free and prevent the atrophy or kraurosis from progressing the patient must be supplied with enough estrogens to keep the vagina in a physiologic state—which is indicated by the estrogen (Reaction IV) smear. The *modus operandi* of the estrogen inunctions in relieving the pruritus is difficult to explain. This aspect of the problem is being reported upon elsewhere.

We have noted in several patients that following local treatment with estrogens the vulva loses its shrunken appearance and the skin and labia become fuller and softer. These changes are particularly striking in the cases that show early kraurotic changes. The tendency to fissuring disappears and the patients volunteer the information that the skin

does not feel as dry or as hard as formerly. This is particularly interesting in view of the high incidence of carcinoma associated with kraurosis that has advanced to the stage of fissure formation.

*Functional Amenorrhea*—Recent investigations have revealed that in some of these cases there is an excessive production and excretion of gonadotropic hormone, whereas, in others, there appears to be none.<sup>15</sup> Vaginal smears indicate that in some cases there is a degree of estrogen deficiency comparable to the menopause. In others, the smears indicate an adequate estrogen effect. The nature of the hormonal derangement in functional amenorrhea is urgently in need of clarification. Some of the cases appear to be primary pituitary deficiencies, others appear to be primary ovarian deficiencies, presenting endocrine features indistinguishable from the menopause—"atrophic" smears and excessive gonadotropic hormone excretion. Some cases are complicated by a hypothyroid state. The latter usually respond to appropriate thyroid medication alone.

The group of cases that show estrogen deficiency smears and atrophy or hypoplasia of the endometrium should be treated intensively with estrogens. Such patients should be given approximately 200,000 R U, estradiol benzoate, intramuscularly, during the first month of treatment. We have found it advantageous to supplement the estrogens with progesterone during the second two weeks, giving 20 mg per week. Treatment is discontinued for a week if uterine bleeding has not occurred. Usually uterine bleeding will occur five to eight days after cessation of treatment. Immediately after the cessation of bleeding, estrogen therapy should be recommenced, reducing the dose during the second month by 25 per cent. This is repeated for three successive months, reducing the dosage each month by approximately 25 per cent. The progesterone is continued as during the first month.

Some cases with advanced atrophy of the endometrium require as much as 500,000 R U during the first month to

induce uterine bleeding The cases that reveal moderate estrogen deficiency, as indicated by the endometrium and vaginal smear, do not require as intensive treatment. The first month 100,000 R U can be given, estrogens being continued for four successive cycles, reducing the amount monthly by 25 per cent

*Oligomenorrhea*—Small doses of estrogens are frequently helpful if the basal metabolic rate is found to be normal Usually 10,000 R U, twice weekly for two months, in addition to 20 mg progesterone per week during the second two weeks, reducing the dose by half in the third and fourth months, will produce definite improvement

*Gonorrheal Vaginitis in Children*—The results with estrogens in this condition are very striking Lewis<sup>17</sup> and TeLinde<sup>18</sup> have reported a large series of cases with a high percentage of cures The estrogen can be administered hypodermically in doses of 2,000 R U, twice weekly, by mouth, in doses of 1,800 oral units per day, or in the form of suppositories (2,500 units each night) Treatment should be continued until the smears become repeatedly negative This usually takes three to four weeks

*Urinary Frequency and Dysuria*—In old women urinary frequency and dysuria which is not attributable to organic disease can frequently be relieved by estrogen therapy In some cases these urinary symptoms are accompanied by urgency and incontinence Cystoscopy usually reveals nothing abnormal except a slight trigonitis Not infrequently there is an associated senile vaginitis

Estrogens have been recommended for atrophic rhinitis, breast adenosis, dysmenorrhea, migraine, and involutional psychoses Our experience with the use of estrogens in these conditions has not been extensive enough to warrant its evaluation

### Experience with Estradiol-Dipropionate

It has recently been reported<sup>20</sup> that in animals estradiol-dipropionate has a

more prolonged estrogenic effect than any of the other estrogenic preparations We have used estradiol-dipropionate in a series of 14 cases with various degrees of menopause symptoms The dosage employed varied from 1 to 5 mg, two or three times weekly, given intramuscularly in sesame oil We have found that the symptoms are rapidly controlled with the 5 mg dosage Estrogen smears appear at the end of a week after 10 mg of the hormone This estrogenic substance is effective in relieving the symptoms and producing estrogenic effects in the vaginal smear Clinically, its effects are qualitatively indistinguishable from those produced by estradiolbenzoate It is very difficult to reproduce conditions in humans comparable to animal experiments, in order to determine whether the prolonged effect attributed to estradiol-dipropionate in experimental animals obtains also in the human Prolonged and careful observation in a large series of cases would be necessary if one were to determine whether this estrogenic compound possesses any virtues that would make it preferable to the other estrogens

### Experience with Stilboesterol

Dodds and his co-workers<sup>21</sup> have prepared a synthetic compound which has strong estrogenic activity in animals Three clinical reports have appeared recently in England on the use of this substance in humans<sup>22,23,24</sup> The authors have reported very good therapeutic results in the treatment of cases of menopause, dysmenorrhea, and amenorrhea We have employed it in a series of 38 menopause cases (natural menopause and surgical castrates) Clinical observations were correlated with vaginal smears The hormone was administered intramuscularly, in doses varying from 1 to 5 mg, three times weekly, in oily solution and, by mouth, in doses of 0.6, 3, and 5 mg per day (tablets [Squibb]—0.1, 1, and 5 mg each, and capsules [Ayerst, McKenna, and Harrison]—1 mg each) Twenty-six of the 38 patients were given intramuscular injection

tions 15 of these were subsequently given tablets or capsules. 12 were begun with the oral preparation.

## Results

**Intramuscular Injections**—Stilboesterol produces characteristic estrogen smear changes similar to those produced by the physiologic estrogens. Estrogen smear changes appear, after 10 to 20 mg., in four to seven days. A definite estrogen effect was noted as early as four days after a total of 5 mg., in cases of senile vaginitis. Symptoms, particularly the flushes, yield quickly to the administration of the hormone. The flushes can be completely controlled at the end of ten days with total doses varying from 15 to 25 mg. However, some of the other symptoms are not strikingly improved, particularly the headaches, fatigability, and nervousness. Furthermore, 20 per cent of the patients complained of nausea and anorexia, and some of dizziness and vomiting.

**Oral Administration**—Twelve patients were given doses varying from 1 to 5 mg. per day. Of these, 10 developed nausea, 6, nausea, vomiting, and epigastric pain; 4, vomiting and dizziness. In the majority, the symptoms developed within six hours. In some, these symptoms came on an hour or two after taking the pills. Only 8 cases were able to continue with stilboesterol by mouth for more than a week; the others were made so ill that they refused to continue with the tablets. The menopause symptoms of 4 of these were definitely diminished at the end of one week, with doses of 3 to 5 mg. per day, and satisfactorily controlled at the end of two weeks. Of the remaining 4, the symptoms were only slightly improved in 2 cases and not at all in 2. It is interesting to note that 2 of the cases that did not respond clinically showed vaginal smears, indicating an estrogen effect. Ten of the 15 cases who had previously taken intramuscular injections with either no nausea and vomiting or only slight nausea, developed nausea and vomiting when placed on oral therapy. Apparently some of the patients

who will tolerate the intramuscular injections will react with nausea, vomiting, etc. if they take the stilboesterol by mouth.

It appears that stilboesterol possesses some of the physiologic properties of the natural estrogens. It can relieve the vasomotor symptoms resulting from estrogen deficiency and it stimulates epithelial proliferation of the atrophic vaginal mucosa and probably also of the endometrium. However, it has certain objectionable side effects, noted chiefly when administered by mouth. The unpleasant symptoms induced in many patients suggest a toxicity, the nature of which is not yet clear.

There are no data available at present concerning the effect of this substance on the hypophysis, endometrium, and kidney and liver function. A significant observation is that made by Parker, Dadds, and Noble<sup>11</sup> that stilboesterol, if given soon after ovulation, prevents implantation of the blastocyst and could also terminate an established pregnancy in rats.

We feel that all of the pharmacologic aspects of stilboesterol activity should be exhaustively investigated and, if it is found pharmacologically and endocrinologically to be devoid of harmful potentialities, it may then be considered as a candidate for our hormonal armamentarium.

## Implantation of Crystalline Estradiol-Benzoin

One of the serious problems of estrogen therapy is its costliness. Although the price of estrogen preparations has been strikingly reduced in the past two years, it is still prohibitive for many patients. The problem of the cost is, of course, related to the factor of the high dosage required to achieve a therapeutic effect. There is considerable evidence available to indicate that the high dosage required is partly attributable to the rapid excretion of the hormone which, in turn, is the result of rapid absorption. The use, therefore, of an estrogenic preparation which is slowly absorbed would represent

resent a substantial economy. This has been achieved, to an appreciable degree, in the esterification of estradiol in the form of estradiol-benzoate. In spite of this comparative retardation of absorption, however, we feel there is still a considerable loss by excretion which might be prevented. In an attempt to retard the rate of absorption even further, we implanted crystalline estradiol-benzoate subcutaneously. We have found that the effect from a given amount of implanted crystalline hormone is much more prolonged than from an equal amount of hormone when injected in solution in oil. Several patients have been satisfactorily maintained for more than six weeks with a single implantation of 4 or 5 mg of the pure hormone, which is equivalent to a total dosage of 24,000 and 30,000 R U, respectively. This method of administering the hormone holds forth hope of possibly simplifying the problems associated with estrogen therapy. We are pursuing this investigation further and expect to report our results shortly.

## Discussion

The method of treating the menopause patient as outlined here—first, saturation by means of high dosage, followed by a maintenance dose for months—is predicated upon the concept that the menopause syndrome is essentially a deficiency disease and, if our aim is to maintain that individual in a state of physiologic hormonal balance, we must continue to supply her with estrogens. Many patients, however, can gradually diminish the maintenance dose and after periods varying from six to eighteen months their autonomic nervous systems become adjusted to the altered hormonal economy. We must face the fact, however, that if we are to saturate a patient with estrogens and thereafter keep her adequately supplied, while we do relieve her symptoms and provide her with a very comforting sense of nervous and emotional stability as well as physical vigor, sudden discontinuation of the hormone therapy may cause recurrence

of all the symptoms in their original intensity. We must be reconciled, therefore, to keeping some of the cases on small doses for many months and, possibly, years. However, the patients are so richly compensated in the restoration of emotional stability and a sense of physical well-being, that they gladly accept the slight annoyance of continuing with the maintenance dose.

Our advising comparatively large doses of estrogens over prolonged periods of time and their inunction in senile atrophy of the vulva and kraurosis raises the question of the possible carcinogenic effects of estrogens. There is an extensive literature on the subject, but the exigencies of time will not permit our discussing this very interesting problem. Briefly, however, we may state that there is no evidence at present that the administration of estrogens to humans carries even a remote hazard of carcinogenesis. Emge<sup>26</sup> has recently reviewed the subject very thoroughly. Our observations with very large doses in humans have revealed the very significant fact that while in moderate doses estrogens cause active proliferation of the atrophic vaginal and endometrial epithelium, *increasing the dosage progressively does not result in a progressive proliferation* beyond that found in untreated menstruating women. We have not been able to produce abnormal epithelial proliferation with doses varying from 5,000,000 to 10,000,000 R U (15,000,000 to 50,000,000 I U) of estradiol-benzoate. It would appear that there is a limit to the amount of proliferation that estrogens can stimulate, and that the epithelial growth instigated by the estrogens does not transgress the normal boundaries, in spite of continued administration of enormous doses. This phase of the estrogen problem is still being investigated and will be reported upon in the near future.

## Summary

1. The clinical indications for estrogen therapy and the optimal dosage of estrogens are reviewed briefly.

2 The value of the vaginal smear as an indicator of estrogen deficiency and as an index of the efficacy of administered estrogens is stressed

3 The various estrogenic preparations available are classified.

4 The value of two new estrogenic preparations (estradiol dipropionate and diethyl stilboesterol) is discussed.

5 A preliminary report is presented on the subcutaneous implantation of pure crystalline hormone (estradiol benzoate)

We wish to express our thanks to the following pharmaceutical houses for their kindness in supplying us with the endocrine products used in these studies

Schering Corporation, for estradiol benzoate (Progynon B), estradiol crystals, estradiol ointment (DH Lanol), estradiol tablets (Progynon-DH), and estradiol suppositories (Progynon DH), Ciba Pharmaceutical Products, for estradiol-dipropionate, Ayerst, McKenna, and Harrison, for emmenin (concentrated), and stilboesterol, Squibb and Sons for stilboesterol

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## BROMIDE INTOXICATION NOW COMMON

Bromide intoxication resulting in mental aberrations has become a common condition, and judging from the hundreds of cases reported, it is prevalent in all parts of this country. Lewis P Gundry M.D. of Baltimore declares in the *Journal of the American Medical Association*

Improper use of physicians prescriptions by disregarding instructions and taking large frequent doses, and repeated refilling of a prescription that calls for a moderate dose of bromide, together with self medication through the many proprietary medicines containing bromides, are the chief causes of the condition, Dr Gundry says. As preventive measures he recommends that all prescriptions should be marked not to be refilled and that the public be warned against self medication.

Patients with chronic alcoholism are particu-

larly prone to develop bromide poisoning as such persons frequently take excessive doses of any medication. Several patients in the series of 15 reported by the author literally substituted bromide solutions for alcohol at the end of a spree.

Recovery from the symptoms of bromide poisoning requires from one to six weeks depending largely on the severity of the intoxication. It is noteworthy, however, that an underlying psychosis was found in 3 of the patients and that there has been a recurrence of drinking in several of those with chronic alcoholism.

Because chloride replaces bromide in the body and promotes its elimination by the kidneys sodium chloride, or salt is a specific in the curative treatment of bromide intoxication the author states. This inexpensive medication is most easily given by mouth in capsules.

# DISPENSARY DIABETICS

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A SURVEY of the Beekman Street Hospital Diabetes Clinic is here presented to learn whether the ends justify the means. Essentially a good-natured Italian group, sparing neither wine nor spaghetti, yet managing to conform sufficiently to diabetic requirements to continue to eat, drink, and be merry. Here, then, is the setup.

## Material

Since the organization of the Diabetes Clinic in 1934, we have had 110 cases (52 males and 58 females), the majority, 68 (61.8 per cent), being Italians. At present, 75 of these are attending the clinic, 30 per cent having moved to more fertile soil this side of the River Styx. Average age, 54½, average weight, 156, average blood sugar fasting, 209, average blood pressure, 158/86, therefore, a middle-aged group of mild diabetics.

## Treatment

This is ridiculously simple, as we give them all the same starting diet, which consists of C-117, P-54, F-36, or 1,008 calories—not enough to be theoretically sustaining, yet practically sufficient to maintain weight, showing that we can lead them to the trough but can't make them think. However, we don't get excited about that, but, having provided the best possible pattern, we build our insulin around our patient, his intake and his output. Sometimes we don't admit this until we pluck a sugar-leaking patient from the dispensary and place him in the ward where his glycosuria ceases with twice his usual diet and half his usual insulin. This proves that man is but mortal and interesting. But, to return to the start of our diabetic treatment, we provide the basic diet (opposite column).

If this makes him sugar-free, we add a slice of bread to his daily regimen until he is satisfied. If he continues sugar-free,

no insulin is given. If sugar shows with the Benedict's test, then we begin with 10 units of protamine insulin and have the patient return in one week for a checkup. This is a field day—they all come into one room as gaily as Venetian gondoliers. Fifteen or 20 specimens are then baked in the usual fashion with Benedict's solution. If more insulin be needed, more is given according to the degree of sugar in the urine, but usually not increasing over 5 units at a time, as there is no hurry and protamine insulin is cumulative and should be slowly altered. Each patient is lectured before the whole class, providing mutual benefit and amusement. Eager eyes watch the urinary sediments to taunt the hapless victim who has a red or yellow reducing urine. Weights, too, are charted and he who is already fat and yet gaining is berated for this indulgence. We do not have patients examine their own urines, even though this be orthodox, because of several reasons: extra expense, extra Benedict's, extra glassware, and finally because it is not necessary, as our patients keep mostly sugar-free, remain

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### Basic Diet

Breakfast	1 small orange or ½ grape-fruit 1 cup coffee 1 cup or 6 oz. milk 4 tablespoons cooked oatmeal or 1 slice bread
Dinner	1 portion (3 oz.) meat, fish, fowl, or cheese 3 tablespoons (about 5 oz.) green vegetables 1 slice bread
Supper	1 small orange 1 glass milk (8 oz.) or meat, fish, or fowl 3 tablespoons green vegetables 1 slice bread (no butter) 1 orange

well and, therefore, do not usually die—the exceptions to be mentioned later. Furthermore, if they did not report their urinary findings any better than their dietary digressions, it would not be very reliable information. Fifty patients were controlled by diet alone and 60 received insulin, their average dose being 17 units, showing that most of our cases were mild. About 75 per cent of our cases showed no symptoms of diabetes, the diagnosis being made from routine urinalyses.

### Complications

In order of frequency are arthritis, 10 per cent, lues, 8.2 per cent (under treatment), pyogenic infections, 7.3 per cent, coronary disease, 4.5 per cent (diabetes and coronary disease both develop most frequently in the sixth decade), hyperthyroidism, 4.5 per cent, coma (2 cases), 1.8 per cent (in patients not previously treated in our clinic, we having a clean record), carotonomia (1 case), caused by eating carrots or other pigment vegetables, none of which our patient admits eating, therefore more interesting than informative, and cholecystotomy (1 case) diabetes subsequently improved, though no gallbladder disease found (additional useless information).

### Deaths

Three died, 1 of cerebral hemorrhage, 1 resulting from thyroidectomy, and 1 from cause unknown. The thyroidectomy was undertaken in the belief that there would be a general improvement following removal of a very toxic thyroid. A sound idea had there been no casualty. The other 2 cases warrant less comment.

### Allergy

To protamine zinc insulin in a patient sensitive to fish—changed to regular

insulin with relief—then back to protamine zinc insulin and no longer sensitive. Why? In the immortal words of the Mad Hatter, "Why not?"

### Economic Survey

Of 75 of our patients attending the clinic from February 1, 1938, to November 1, 1938: 13 patients working, mostly part time, 3 patients living on savings, 2 patients being helped by friends, 13 patients helped by family, 7 patients on WPA, 22 patients on Home Relief, 5 patients on Old Age Pension, 3 patients on Army and Navy Pension, 1 patient on Railroad Pension, 1 patient on City Pension, and 5 patients not known.

### What These People Cost Us

Salaries, including maintenance, insurance, investigators, orderlies, doctor, pharmacist, registrar, food, workmen's compensation—estimated \$1,531.46, Drugs (protamine insulin, Benedict's solution), \$310.68, medical and surgical supplies, such as test tubes, insulin syringes, and needles, \$51.42, files, charts, covers, OPD sheets, \$6.32, other overhead, \$317.50. Total, \$2,217.38—for 55 patients, or 500 visits, cost per diabetic visit, \$4.43. Is it worth it? Apparently about 16 of these make or made their own living. Should we have more dietitians, instructors, further urinary examinations and regimentation, or should we recognize the human limitations and let them continue their rugged individualism at \$4.43 a visit which, when added to what they get from our modern paternalism amounts to a neat sum. However, we keep them out of the hospital and this is a saving—but then we make them live longer. Somebody must eat macaroni and spaghetti or else there would not be any work for their manufacturers.

### WHEN THE DEW OF DEATH FALLS

In their preparations for war British medical authorities figure that 300,000 beds must be quickly made available for civilian casualties from air raids. They propose to find 100,000 of these by sending home patients from the general

hospitals who are able to go and will set up 110,000 additional beds in existing hospitals and institutions. The rest will be provided in blocks of huts or complete temporary hospitals which will soon be under construction.



# SOME SCHOOL HEARING SURVEYS, ANALYSIS AND OBSERVATIONS

E MARTIN FREUND, M D , Albany, New York

THE public consciousness and knowledge of the hard of hearing problem, particularly of the school child, is more than a decade old. It seems worth while to analyze the results of this effort in health promotion. I shall not go into the merits of prevention of deafness, commencing with the child of school age, as considerable has been written on that subject, and it needs no further justification or defense. Hearing surveys are being conducted by part-time otologists, school physicians, and in many instances by school nurses or technicians who may come under the pedagogic category. However, the important objective of these studies is not only the number of children discovered to have hearing defects, but the practical benefits to be derived therefrom.

Let us consider the usual result in cases found to have hearing defects with a group audiometer or with an individual pitch-range audiometer. For purpose of illustration, we may take the case of a child who has been found during a school survey to have a definite loss of hearing. When this defect is discovered, the school office is notified, the parent receives a card from the principal informing him of the child's hearing loss, and advising that the child be taken to the family physician or otologist, or to an ear clinic for the proper remedial measures. Often, this is the end of the story, because some parents respond very reluctantly, or not at all, to this report. In the meantime, this pupil retains his handicap and continues to bear the additional physical strain in school and his other environments. He appears dull, inattentive, and queer to his friends, teachers, and in many instances to his parents. It is only in cases where progressive school systems and cooperative parents adopt vigorous action that a real attempt is made to prepare

this pupil for a normal and practical adaptation to his handicap in his early adolescence.

Less than fifteen years ago, it was pointed out to the profession and to the public that there were about three and a half million school children in the United States who had a hearing loss from a moderate to a severe degree, and this figure has hardly diminished, as recent reports indicate. This does not mean that no scientific progress has been made in the treatment or prevention of deafness. Given a case of *early* detected deafness, whether it be a child or adult, unless it be deaf-mutism or total auditory nerve destruction, proper and persistent treatments and the eradication of the underlying pathologic causes, usually located in the upper respiratory tract, will in most instances either cure or greatly improve that deafness. I stress the word *early*. Many of us have seen the dramatic effects on deafness of the removal of a diseased set of tonsils, the removal of a mass of adenoid tissue high up in the nasopharynx or in Rosenmüller's fossa, a submucous septum operation, treatments directed toward sinus involvement, and the removal of infected teeth. Instances of this kind indicate the undoubted relationship between these pathologic conditions and the deafness. But one cannot expect these results after the diseased process has been allowed to progress for a number of years. Elimination of these foci under the latter circumstances may result in little or no benefit.

Having conducted a number of hearing surveys during the last seven years, in both large and small school systems, my observations may be pertinent. These surveys begin with the third grade pupils, due to the fact that special technique is required for children below that grade. Time did not permit this procedure

Groups of 40 are first tested with the 4-A or screen audiometer. Those who show hearing defects are again tested in groups with the same apparatus, many of the latter passing the second test. Inattention, nervousness, carelessness and distraction are often responsible for the first failure. From 5 to 20 per cent usually show defects after the second test. These pupils are then given an individual 2 A audiometer or pitch range audiometer test. This electrical device indicates the approximate percentage of loss of hearing present, both to tone as well as to pitch. These last pupils also have their ears, noses, throats, teeth, and sinuses examined for any defects that may be present.

Having given this brief summary of procedure, we will now look at some findings in a comparative analysis of six school systems. The largest unit is that of the entire public school system of Albany, the next is a large parochial school in Albany, the third is the school in the village of Chatham. Then we have the freshman class of New York State College for Teachers, as well as the students of Milne High School. Finally we have a small parochial school in the outskirts of Albany.

The accompanying chart indicates the name of the school, its census, total number of pupils examined, hearing defects noted, previous history of ear disturbances, physical defects found in the ears, noses, throats, and sinuses, and the number of pupils recommended for lip reading. In the number of defective hearing and borderline cases found there is a fairly equal distribution of males and females. These histories given by the pupils are not absolutely reliable, but generally speaking they may be considered as 75 per cent accurate. Information is also obtained as to previous tonsil and adenoid operations, mastoid operations, and family deafness. There was no striking decrease in the incidence of deafness in early tonsillectomized children, as compared to those nontonsillectomized. Thus it would appear that diseased tonsils and adenoids are not the only fac-

School	Census	Total 4-A Tests	4-A Tests	2-A Tests	History of Previous					Physical Findings										Rec-om-mended		
					Barnebe	Ear Disch.	Head Notes	Drum Retr	Nose Retr	Dev. Sep.	Hypertr.	Sinus In-	Tonsil In-	Tonsil Chon.	Hypertr.	Phar. Grad.	Defect. Hear-	Der. Defect.	For Lip Read-			
Albany public school system	13 000	9 741	2 373	747	2 009	690	1 104	167	348	37	40	228	44	277	131	60	339	108	72	3%	2%	11
Chatham New York	700	559	178	84	106	50	130	4	11	34	20	18	42	17	37	29	21	32	11	4%	5%	9
Vincennes Institute	1 800	1 240	139	57	384	150	238	9	6	19	20	16	32	32	20	21	18	19	9	1 5%	1 6%	3
St. Margaret Mary	70	68	16	13	32	16	12	3	1	0	1	4	3	3	8	3	3	8	3	4%	7%	2
Freshman Class, N. Y. State College for Teachers	300	303	50	8	56	3	17	3	2	2	2	2	3	3	3	2	4	1	1	1%	0 5%	4
Milne High School	403	368	35	12	74	7	23	4	4	5	4	3	5	3	3	4	5	3	4	1%	0 5%	101
Totals and Averages	15 903	13 259	2 703	921	2 851	922	1 890	184	408	104	90	311	104	300	100	143	390	237	101	2 4%	2 8%	2 4%

tors concerned in the production of deafness

It is interesting to note that about one third of the children presented retracted drums. These ranged from a moderate to a severe degree. In the 180 cases where wax was found in the ear, no attempt was made to remove the wax when it was hard and impacted. This is not considered the function of the school physician or otologist conducting a school survey.

Hypertrophied or boggy turbinates are common findings in the school child, even in normal health. It will be noted that the tonsils were either hypertrophied alone, or hypertrophied and diseased in more than one half of the cases examined. This should be interpreted by the individual examiner, especially if he has the opportunity to follow up these cases from time to time. About 20 per cent of the cases examined individually showed drum perforations that were in most instances dry and without granular margins. This condition is an important factor in the predisposition to deafness. About 15 per cent of these pupils also showed evidence of adenoidal hypertrophy in spite of histories of previous tonsil and adenoid operations. The sinus involvements were located mainly in the ethmoids, there being only a very few instances where the frontal sinus or antrum appeared cloudy or otherwise involved.

Of 921 2-A tests made, 390, or more than one-third, showed defective hearing of 20 per cent or more loss in one or both ears. This percentage would seem rather high, but the percentage reckoning must be made against the 12,258 school children whose hearing was originally examined. This would then give an average of 2.6 per cent incidence of defective hearing among nearly 13,000 school children. The borderline defective total is 227, or 3 per cent incidence of moderate deafness found. Thus we have a total of 617 hearing defects found in approximately 13,000 school children. We note that 101 children were recommended for lip-reading instruction in addition to their regular daily curriculum. Any child showing a loss of hearing of 20 to 35 per cent or more

in the better ear is a proper candidate for lip-reading instruction.

### Lip Reading

I wish to emphasize this valuable adjunct in treating the hard of hearing. One must have had either the personal experience or close contact with such cases to appreciate this fact. The progress noted in school children who have had the advantage of lip-reading instruction is very striking. They comprehend things better and faster, and they assume a different attitude toward their studies and environment.

But all this requires foresight on the part of the school system, encouragement by the otologist, skilled teachers in the field, as well as patience and cooperation on the part of the pupils and parents.

Of course there are also available the newly improved electric hearing aids which are a boon to deafened adults. But one hesitates urging their extensive use by the school child for numerous reasons, among them being the self-consciousness resulting therefrom, and lack of mechanical dexterity.

### Summary

Having presented these figures, what are the practical values and constructive suggestions that may result from these surveys? It is interesting to note that the State of Minnesota, after a ten-year program of hearing surveys and follow-up methods, succeeded in lowering the hard of hearing incidence in their school system from 10 per cent to less than 7 per cent. The cost of these annual hearing surveys has been more than compensated by the savings in the school budget of the costs of the repeating child.

The City of Albany has also profited by a series of hearing tests. For example, during 1935, 1936, and 1937, all the fourth, fifth, and sixth grades, as well as all new incoming pupils to the higher grades, have had their hearing tested. During these years, 3,476 were group-tested. Of these, 322 required 2-A tests and of these last, 126, or 4 per cent of the total tested, were found to have defective

hearing One may reasonably estimate that the figures would be the same for the other grades. Thus, we see that the hard of hearing incidence has been reduced from 5 per cent to 4 per cent in seven years. Incidentally, 53 of these 126 were examined by private otologists, 9 were recommended for lip-reading instruction, and over 200 school children had their seatings readjusted to front row locations.

As a result of numerous hearing surveys in New York State, an act was passed by our legislature in 1936 making annual audiometric tests of all school children mandatory. These laws (chapters 855 and 856, June 4, 1936) also provide for assistance by the State Commissioner of Education to the school, in the form of appliances and apparatus and supervision to carry out their intents and purposes. All minors under 6 years of age found to have a hearing loss must be reported to the local health or welfare officer. As early as 1926 the A.M.A. endorsed and recommended these annual surveys, and gradually more state and national medical societies have approved this program.

In conclusion, it may be said that hearing tests of the school child should be conducted annually or periodically. These examinations should be divided into two phases, namely group tests and individual tests. The 4-A as well as the 2-A tests can be done by an otologist, a school physician, a trained technician, a school teacher, or a school nurse. The ear, nose, throat, and sinus examinations should be conducted by a part- or full-time

otologist, so as to render the results uniform. There should also be continuous education of the parents, the teachers, and the public in general to the urgent necessity of treating the defects as discovered. May I emphasize finally that it is by early detection of defective hearing with its related pathology, and the prompt attempts to correct these conditions, that the incidence of deafness can be successfully lowered.

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## WATER BORNE AND MILK BORNE DISEASE IN 1938

For the eleventh consecutive year there has been no outbreak of water borne typhoid fever in the state which could be attributed to water from a public supply system says *Health News*. An epidemic of bacillary dysentery was reported in a village supplied with water from a surface stream and chlorinated before delivery but the illnesses were attributed to temporary failure of the chlorination equipment for approximately one day. Previously the state Health Department had recommended a filtration plant, and the village is planning to provide such a plant. This outbreak shows the need for constant vigilance.

Investigation of an outbreak of gastroenteritis

among workmen at the Buffalo airport disclosed that the water supply from a public system was satisfactory but that secondary pollution had occurred during enlargement and repair of the distribution system. The new or repaired mains had not been disinfected.

The record of milk borne outbreaks is less favorable. There has been practically no diminution of such outbreaks, and raw milk continues to be the cause. The outbreaks have been confined to small municipalities where a large proportion of the milk consumed is raw. Continued progress depends not only on maintaining the safety of public milk supplies now pasteurized but in increasing the use of pasteurized milk.

# THE TREATMENT OF ACUTE ENCEPHALITIS BY THE INTRAVENOUS INJECTION OF HYPOTONIC SALT SOLUTION

GEORGE M. RETAN, M D , Syracuse, New York

**T**HE success that has attended the treatment of various types of acute encephalitis by means of the intravenous injection of hypotonic salt solution, compels me to report a few of the cases I have so treated and to describe the technical procedure employed. My purpose is to invite the interest of other men in this method, and to describe the procedure to those who may be sufficiently interested to follow it in the treatment of such cases.

The evaluation of a new clinical procedure, in the final analysis, rests upon statistical evidence. The gathering of sufficient material from which statistical studies can be made requires a good many years, and such material should be obtained from several sources. The number of cases of acute encephalitis that have been treated has been too few to make a report conclusive, but the response of these patients to treatment, and the reports of other observers throughout the country who have written me from time to time of their excellent results, certainly justify a presentation of the work that has been done.

## Theory

The Virchow-Robins perivascular spaces (Fig 1) play an important role in this treatment. These spaces are ill-defined interstices, surrounding arteries and veins that penetrate into the depths of the central nervous system tissue. Around the large vessels at the brain surface and for a variable depth, these spaces are more distinct, with supporting membranous processes, continuations of the pia arachnoid. Although they are not sharply defined drainage channels with lining membrane, they are, nevertheless, sufficiently circumscribed to allow small amounts of tissue fluid to reach the subarachnoid lake by a process of seepage. Since there is no distinct mem-

brane to obstruct this passage, no osmotic force is necessary to effect this fluid movement. Fluid from the perineurial, pericapillary, and pericellular spaces within the depth of the central nervous system can make its way to the perivascular spaces.

When inflammation exists within the tissue of the central nervous system, in the acute diseases in which this treatment is used, we find certain changes. These spaces are distended by fluid, if edema is present, and often, the Virchow-Robins spaces are found choked with cells (Fig 2). These cells are usually of the lymphatic type, at times, an admixture of polymorphonuclear leukocytes, with a rare clasmatocyte, and in very severe inflammations, red blood cells may be found. These exuded red blood cells result from breaks in the capillary walls, caused by severe inflammatory processes. This latter condition is found more particularly in certain severe cases of acute encephalitis, often described in the medical literature as hemorrhagic encephalitis.

When we increase the transudation of fluid within the depths of inflamed areas of the central nervous system, in certain cases, fluid seeping down the Virchow-Robins spaces washes quantities of these cells into the cerebrospinal lake of fluid. The presence of these cells in fractions of cerebrospinal fluid removed during the course of a treatment, demonstrates forcibly the presence of perivascular cellular infiltrations. And further, by counting these cells, the operator may gain a rough estimate of the extent of this infiltration. In Sydenham's chorea, we find small areas of perivascular round cell infiltration in the caudate nucleus. The typical findings, therefore, are a few cells in fractions of cerebrospinal fluid examined during the course of a treatment, as compared to larger numbers found in

diseases having a more diffuse inflammation

These cell responses are found in all cases of acute poliomyelitis, but have not always occurred in Sydenham's chorea, nor in all cases diagnosed as acute encephalitis. Typical findings are as follows: Sydenham's chorea, 1 cell in the original fluid, and 7 cells the maximum number in any fraction examined in



FIG 1 Showing Virchow Robins perivascular spaces.

acute poliomyelitis, 150 cells in the original with 261 cells maximum, acute encephalitis, 21 cells originally, with 32 cells the maximum number.

The absence of cell response in certain cases of chorea and encephalitis has not meant therapeutic failure, and whether we can say that a lack of cell response in the fractions examined means the absence of perivascular cellular infiltration, is not clear. No such conclusion can be drawn rather we could conclude that a diffuse perivascular infiltration does not exist.

We will now examine the changes that are known to take place when a hypotonic salt solution is injected into the blood stream and will discuss the difficulties encountered in any attempt to ex-



FIG 2 Showing choking of the Virchow Robins spaces with cells. Taken from a case of acute poliomyelitis (human)

plain satisfactorily the therapeutic responses we have observed.

When a hypotonic solution is injected into the blood stream of animals the osmotic pressure of the blood is lowered. This causes a rapid transudation of water from the capillaries into the pericellular tissue spaces of the body. The amount of pericellular fluid is increased, and the percentage of electrolyte is decreased. Therefore, the balance existing between the pericellular tissue fluid and the fluid within the cell itself is disturbed. As a result of the dilution of the electrolyte in this tissue juice, water passes into the cell body.

Some of this excess tissue fluid drains down the Virchow Robins perivascular spaces and is added to the lake of cerebrospinal fluid. More of it is reabsorbed by the venous capillaries and re-enters the blood stream. At the completion of the injection of hypotonic solution, the equilibrium between these various collections of fluid is slowly reestablished. However, if we continue the injection of hypotonic solution over a period of a few hours, these artificially produced

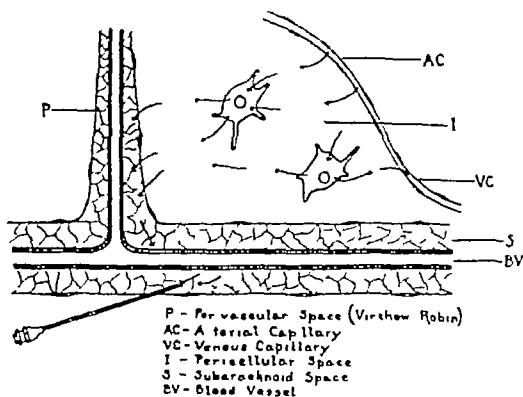


FIG 3 Diagrammatic drawing of section of the central nervous system, with the arrows indicating fluid movements resulting from the intravenous injection of hypotonic salt solution

fluid movements will continue throughout the injection (Fig 3)

We know that these changes cause a deformation of the nerve cell. Starling<sup>1</sup> says "Surface tension must also determine the form of any cell or any part of a cell. The surface tension between a cell and its surrounding medium, e g, water, depends, as we know, entirely upon the chemical nature of the surface. Alter this surface in the slightest degree, as by the deposition of a few ions of one charge or another, and we at once alter the surface tension between the cell and its surroundings, and with this also the electrical conditions of the surface."

While all of the physical and chemical changes in the inflamed cell incident to the intravenous injection of hypotonic salt solution are not known, I believe that this therapy is dependent upon the reduction of inflammatory reaction in the inflamed cell. We know that there is a change in the percentage of electrolyte in the pericellular fluid, and a change both in surface tension and electric reaction. There occurs an increased interchange of fluid between the intracellular and the pericellular fluid, with concomitant expansion and contraction of the cell itself. We know that this osmotic interchange of fluid is more selective to inflammatory tissue.

These are the changes, therefore, that are known to occur during the intravenous injection of hypotonic salt solution in

normal animals. This subject is complicated, however, by certain other changes that take place in the tissues of the central nervous system during infection, as a result of the inflammatory reaction. Since this subject can be most easily studied in monkeys infected with acute poliomyelitis, it will be discussed from that point of view.

The virus of poliomyelitis causes inflammation of the tissues of the central nervous system. This inflammation is related to the vascular system, and more particularly to the capillary bed of the central nervous system. The capillary wall is injured, increasing its permeability and allowing the passage of an increased amount of water and salts, and, at times, nondiffusible colloids as well. Protein molecules that are unable to pass through the wall of the normal capillary can often penetrate capillaries in inflammatory areas. As a result of this increased flow of fluid into the tissue spaces, we have the phenomenon of edema. In addition, there is found a perivascular infiltration of round cells, and often of tiny tissue hemorrhage.

The author was able to show, in 1932,<sup>2</sup> that while the injection of hypotonic salt solution was essentially hydropygeous, its action was more selective to inflammatory tissue. This fact can be amply demonstrated in several ways, and is illustrated by the following facts. In human beings as well as in experimental animals, during the intravenous injection of hypotonic salt solution, there is no edema of the lungs sufficient to cause râles to be heard upon physical examination. There is not a sufficient loss of water into the colon to cause any evident softening of the stools. Of course these tissues partake of a share of increased hydration. There is an increased excretion of urine.

However, in cases of inflammation of the lungs or bronchi, an acute edema of the lungs will develop almost as soon as these intravenous injections are begun. This has occurred during the treatment of several cases of bronchitis associated with infection of the central nervous system,

and in 1 case of pulmonary tuberculosis in a tabetic patient. Also this edema has resulted several times in monkeys with acute poliomyelitis, when they were suffering from pulmonary tuberculosis.

In cases of pyuria, a copious excretion of urine is found during treatment, with coincident lessening of the flow of cerebrospinal fluid. Hypodermic injections of pitressin in an effort to reduce the urinary output of these cases have achieved questionable success. In 1 human case, and in 1 monkey in which acute colitis was present, quantities of water were excreted from the colon. In the case of the monkey, the excretion from the bowel nearly ceased in the interval between treatments, beginning again promptly on resumption of the intravenous injection. As a result, no cerebrospinal fluid was obtained during an eight hour treatment period.

In monkeys, the amount of cerebrospinal fluid that can be drained during the intravenous injection of hypotonic solution varies. There are several reasons for this, the most important being the state of hydration of the animal's body before such treatment is begun. At this point we are interested in the relation of amount of cerebrospinal fluid that can be recovered when the spinal cord is actively inflamed, and with the amount that can be recovered from the normal animal under similar conditions. I have found that when there is inflammation of the spinal cord in acute poliomyelitis, the amount of cerebrospinal fluid that can be drained from the lumbar sac during active treatment is often several times greater than in normal animals.

#### Hydration Factor

Certain improvements observed by other authors in cases of acute poliomyelitis have been attributed to the reduction of edema of the central nervous system tissue, as a result of the treatment used. This point was brought forward more particularly in relation to intertheal injections of ephedrine solutions.<sup>2</sup> This hypothesis presupposes that moder-

ate edema of the central nervous tissue either per se or by resulting increased intracranial pressure is harmful to the nerve cell. I believe that there is little evidence to substantiate this hypothesis. In fact, my conception is that quite the opposite is the truth. Edema results from the reaction of tissue to an inflammatory process, and, as such, could be considered a part of a reparative and protective mechanism. If toxin is present in tissues it would be diluted by the increased fluid. In inflammatory edema there is an increased fluid interchange between the damaged cell and the pericellular fluid spaces, a resultant change in surface tension of the cell, and changes in electromotive force between the cell and the pericellular fluid.

In my earlier work, I was fearful of producing possible damage to central nervous tissue by increasing intracranial pressure, and planned my treatments to prevent this. Later, while working with monkeys infected with acute poliomyelitis, we found that such animals were cured by injections of hypotonic salt solution intravenously, and, further, that this result could be obtained without drainage of cerebrospinal fluid. This type of management does produce a mild increase in intracranial pressure, and does contribute to the further hydration of central nervous tissue beyond that which results from inflammatory reaction. In 80 instances, I have introduced 0.375 per cent NaCl intravenously in these animals, at the average rate of about 22 cc. per kilo each hour, for eight-hour periods, without observing any harmful effect. Experience in the laboratory has amply demonstrated that there is no advantage in draining cerebrospinal fluid during the period in which hypotonic solution is being injected. This experience dictated a change in our procedure in the treatment of disease in human cases. I have repeatedly observed a marked clinical improvement in cases of acute poliomyelitis in human beings during periods when there was no drainage of cerebrospinal fluid, and when 0.375 per cent NaCl was being injected intravenously.



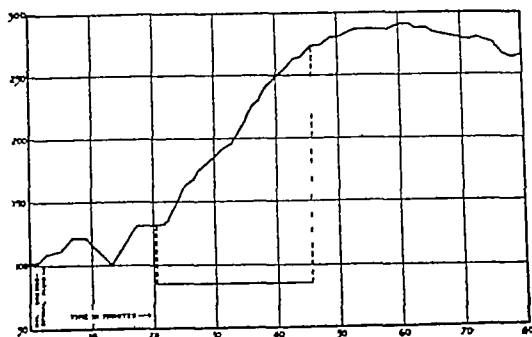


FIG 4 Curve showing pressure of cerebrospinal fluid, recorded in mm of c.s.f., taken at ten-minute intervals during the intravenous injection of distilled water (Reproduced by the courtesy of Dr L H Weed Am J Physiology 48 531 [1919])

at such a rate as to ensure increased hydration of tissue.

Weed and McKibben,<sup>4</sup> in 1919, made a study of increased pressure of cerebrospinal fluid resulting from intravenous injection of hypotonic salt solution. The solution used was sterile distilled water, and the animal, the cat. They found that the pressure was increased from 100 mm of cerebrospinal fluid during the injection of 100 cc of distilled water over a period of one hour, to 275 mm of cerebrospinal fluid. Extreme hydration of central nervous tissue, described in medical literature as produced by intravenous injections of hypotonic solution, has resulted from injections of distilled water. When 0.375 per cent NaCl is used, there has been a very gradual and relatively slight increase in the pressure. These relationships are shown in the accompanying charts (Figs 4 and 4A).

The state of hydration of the tissues of the body at the time these intravenous injections are begun has an important bearing upon the resultant increase of pressure of the cerebrospinal fluid and the resultant degree of hydration of central nervous tissue. While this is usually true, there often occurs an exception in cases of acute poliomyelitis during the second or third injection, when I have frequently found a very low pressure of cerebrospinal fluid. In fact, the fluid may drop so slowly that it is difficult to obtain enough for proper laboratory examination. This may also occur when

the tissues of the body are in a state of increased hydration, which, for a few hours follows massive injections of hypotonic salt solution. Apparently we experience a greater therapeutic response with the second treatment than with the first, when the treatment is given after a sufficiently short interval to ensure a condition of generally increased hydration of the body. This seems to be particularly obvious in the treatment of cases of chorea.

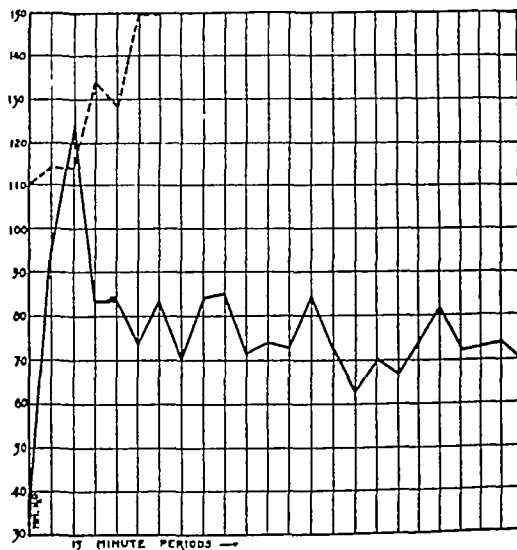


FIG 4A Curve showing pressure of cerebrospinal fluid during intravenous injection of hypotonic salt solution (0.375% NaCl) injected at the rate of 22 cc. per kilo each hour for a period of four hours and forty-five minutes (Subject macacus rhesus monkey)

Our studies have shown that the therapeutic result is not influenced by the amount of cerebrospinal fluid drained. We have shown that a moderate degree of hydration of central nervous tissue is not harmful. There is some danger from draining too much cerebrospinal fluid, i.e., cerebellar herniation. We should plan our treatments in such a way as to ensure the safety and comfort of the patient, and at the same time achieve the best possible therapeutic result. This means the removal of a very small amount of cerebrospinal fluid at hourly intervals.

It is not my purpose to discuss the various types of acute encephalitis, but

merely to state that it is my belief that this treatment should be used in all of them and should be given as early as the diagnosis can be made. Unfortunately, in many cases there exist inflammatory changes in the bronchi and at times an acute nephritis. The presence of these inflammatory changes may present a contraindication, necessitating a delay until the bronchitis or the nephritis is less acute. However, if the encephalitic process is urgent, the treatment may be given, using a less rapid intravenous injection than is ordinarily advised. When bronchitis exists under such circumstances, the possibility of the development of marked edema of the lungs can be watched by frequently examining the chest with a stethoscope. I have carried several such cases through successful treatment, as a small amount of edema of the lung is not serious. In cases where nephritis is present, the treatment can proceed, but the blood pressure must be taken at intervals of a half hour and the rate of the injection of the intravenous solution may be slowed if the blood pressure rises too rapidly.

### Pathology of Encephalitis

We are concerned here with the pathology of encephalitis as it relates to the proper use of this treatment. Since it is desirable that the treatment be instituted very early, it is necessary to deal with the changes in the central nervous system that occur at that time. Our knowledge of the early pathology of acute encephalitis is less definite than is our knowledge of acute poliomyelitis during the early stage of the disease. In general, it may be stated that the definite degenerative changes (chromatolysis and neuronophagia) occur later than in the case of acute poliomyelitis. However, hemorrhage occurs with greater frequency.

The most startling and constant feature of the acute encephalitis cases that come to autopsy is a congestion of the surface of the brain. This is most marked in the brain stem and in the midbrain region. In some cases, petechial hemorrhages are found scattered

over areas of more acute involvement. Rarely, larger hemorrhages are found, and massive hemorrhage can occur. The presence of hemorrhage within the brain does not constitute a contraindication to the use of this treatment, for the hemorrhage that is present is not increased by the intravenous injection of hypotonic salt solution, largely, I believe, because the blood pressure is not unduly raised during such injections. I have seen cases of acute encephalitis, in which hemorrhage was present, respond in a most satisfactory way to such treatment.

Perivascular infiltration of small lymphocytes with a few plasma cells and an occasional large mononuclear type of cell, is found in most cases of acute encephalitis. In addition, there may be a diffuse infiltration of the same type of cells.

Reaction of the meninges to encephalitis varies. In some cases there is only a congestion present, in others, a marked degree of lymphocytic infiltration, most marked in the region of the medulla, is found. The degeneration of neurons in acute encephalitis does not approach, either in frequency or in degree, that found in acute poliomyelitis. Degenerative changes are more frequent in the nuclei of the cranial nerves, especially the third, sixth, seventh, and twelfth, and from the clinical behavior of these cases we must believe that their occurrence is relatively late. Evidence of beginning irritative and possibly degenerative changes in the neurons of these various nuclei is usually present, as shown by paralysis of the muscles controlled by them. However, these paralytic signs are usually transitory, which would lead us to believe that the neuron was not irreparably injured. I have repeatedly seen paralyses of the third, sixth, and seventh nerves, in cases of acute encephalitis, recover promptly and completely during the course of treatment.

Since my material is not sufficiently exhaustive for a statistical analysis, I will present, in some detail, 5 typical

cases of acute encephalitis. In addition, I have treated a number of other cases with similar success, and I have received reports from other clinicians who have used this method successfully. These reports cover cases of lethargic encephalitis, encephalitis following measles and chicken pox, and lead encephalopathy cases. A case of encephalopathy from *Chenopodium* poisoning was successfully treated by this method by Dr. T. L. Burnberg and Dr. C. L. Steinberg.<sup>5</sup> I am of the opinion that this case was skillfully handled.

### Case Reports

*Case of measles encephalitis*—B. J., male, aged 8 years. On June 20, 1935, this boy developed measles (morbilli), typical, except for the fact that there were hemorrhages seen in each of the skin lesions. On June 23, he complained of severe pain in the legs below the knees. On June 24, this pain continued and was also present in both arms. His temperature was 102 F, pulse 64. There was a typical cough. His urine was dripping continuously, and he was unable to expel the residual urine voluntarily. His pupils were equal and were contracted. They reacted to light. No nystagmus was present. There was rigidity of the back and neck, with marked pain on attempted flexion. Koenig sign was positive bilaterally. Biceps and triceps were present and equal bilaterally. The abdominal reflexes were present. Both cremasteric reflexes were absent. The knee and ankle reflexes were obtained only after repeated trial, and the response was feeble. The extensor muscles of the left thigh were spastic. There was no ankle clonus, and the Babinski sign was negative.

During the day of June 23, there were periods when the respirations slowed to 8 or 10, with pauses of the Cheyne-Stokes type, with slowing of the pulse between 50 and 60 beats a minute.

During the night of June 23, the respirations improved and became regular, with a rate of about 28 a minute. Pulse rate was increased to 84. Rectal temperature was 100.8 F. The urine had continued to drip, and the following morning he was catheterized. Four hundred and fifty cc. of residual urine was removed from the bladder.

During the next few days, the patient showed gradual clinical improvement. However, he lost his knee, ankle, and abdominal reflexes. Nystagmus was present when the eyeballs were rotated laterally. He had developed a drowsi-

ness and would go to sleep while being examined. On July 3, the patient again developed sharp pains in the left leg. The nystagmus was still present, and the left eyeball moved unsteadily. The grip in the left hand was definitely weaker than in the right. Biceps, triceps, abdominal, and cremasteric reflexes were all absent, as well as the left knee and ankle reflexes. The right knee reflexes were obtained after repeated examination, and the response was feeble. His temperature was 99 F, pulse 82. Respirations were regular at 22. His drowsiness had continued but was less marked. On attempting to walk, he exhibited an apparent lack of balance. His gait was very unsteady, lifting his feet higher than normal and replacing them on the floor slowly and with uncertainty. With his eyes closed, he was unable to walk at all. At 4:00 P.M. that afternoon, treatment was given. Upon lumbar puncture, the cerebrospinal fluid pressure was found to be 8 mm Hg, with a compression of each jugular vein, pressure rose to 14 mm Hg and returned promptly to its former level. The cell count was 1 cell (lymphocyte). Sugar was 60 mg per 100 cc, chlorides 710 mg per 100 cc. Five hundred and fifty cc. of 0.375 per cent NaCl was injected intravenously in fifty minutes. Twenty minutes after the beginning of the intravenous injection, all of the reflexes had returned. Fifty minutes after the beginning of the treatment, the patient developed a deep breathing similar to the type of breathing seen in anoxemia. He also complained of marked weakness. I believed that this was due to hemolysis, remembering the hemorrhagic type of measles he had, and discontinued the treatment. However, examination of the urine failed to reveal any evidence of hemolysis. I had intended to continue the treatment on the following day, but on that evening and on the following day the reflexes were all normal. There was steady movement of the eyeballs, and no nystagmus was present. He walked normally, even with his eyes closed. Further treatment was, therefore, not given, although the future may prove that our judgment in that respect was not good. This boy continued to improve and to date, January, 1939, has been normal in every respect.

*Comment*—I believe that this patient should have received treatment on June 23 in spite of the presence of a mild bronchitis, as he might have died of respiratory failure. If the chest had been carefully examined during the progress of the treatment for edema of the lungs, there would have been no danger, pro-

vided the treatment were discontinued if marked edema developed

*Case of encephalitis*—H. S., male, 40 years of age. Entered the hospital on August 15 1935. Four days prior to this, the patient developed an acute frontal headache. On the next day the headache continued and he vomited three times. During this period he was very drowsy and slept most of the time. He became disoriented and on entering the hospital, was unable to answer simple questions about himself as to his name and occupation. He could not understand where he was. His replies to questions were very slow and inaccurate. His temperature was 101.0 F., pulse 72 respirations 21. There was no rigidity of the back or neck and his reflexes were all present and normally active except the right knee reflex which was hyperactive. Cerebrospinal fluid count was 16 cells all lymphocytes. Chemistry was not done. Wassermann examination was negative. The patient was not treated until August 20 as the visiting staff wished to observe his progress. On August 20, however he had not improved and he was given a treatment of two liters of 0.375 per cent NaCl intravenously. The following morning he was much improved was oriented, was reading the newspaper with understanding and he answered questions promptly and accurately. He remained in the hospital for one more week. His drowsiness had disappeared and he was mentally alert.

*Discussion* This case was diagnosed by the staff of the Louisville General Hospital as encephalitis. It occurred during an epidemic of poliomyelitis. The improvement immediately following treatment was prompt. This patient should have received more treatment than was given. The demands on our time occasioned by the epidemic, did not allow us to continue his treatment further. I believe that cases of acute encephalitis should receive more treatment than is actually demanded by the acute illness in order to prevent the later development of the Parkinson's syndrome.

*Case of acute encephalitis*—F. C., male, aged 82 years. On October 4 1938, the patient developed herpes zoster of the left eye, forehead, and scalp. During the period up to October 10 he exhibited marked and increasing nervous irritability. On October 10 he became delirious. At this time he also developed urinary incontinence, tremors of both his arms and legs, and

periods of hallucination. His temperature was 101 F and remained at about that level until October 22. From then to October 26 the level was around 102 F. He continued progressively worse and developed sudden quick, jerky myoclonic movements when disturbed. On October 25 I first saw the patient. He had a wandering type of delirium with a continuous picking at the blanket occasional severe and myoclonic contraction of muscle, and had been incontinent of urine for nine days. There was a large inflammatory area of the left forehead and left orbit. He was given eight five hour treatments. The rate of the intravenous injection varied between 700 cc. and 800 cc. as a more rapid rate of injection raised his blood pressure.

After the first injection myoclonic spasm ceased entirely. Tremor was better. He was still irrational. Following the third treatment, his mind was clear at intervals. After the fifth treatment his mind was completely clear. He was given three treatments after he had apparently recovered, with the hope of preventing later Parkinson's syndrome. The vision of his left eye was completely destroyed and this eye was later removed. Specimens of cerebrospinal fluid examined showed 22 to 60 cells all lymphocytes. This patient is at present in good health.

*Case of acute encephalitis*—M. V. female, aged 3 years. Entered the hospital on March 22 1939. The child was taken suddenly ill with generalized convulsions more pronounced on the left side of the body. She was in coma and the convulsions continued for a period of five hours. During this time the temperature rose to 107 F. There was no effect from the usual sedatives, and inhalations of ether failed to control the convulsions. When the convulsions had ceased the baby lay in a state of coma eyelids partly closed pupils were contracted and equal did not react to light. The baby did not respond to any stimulus. No reflexes could be obtained. Temperature was 103 F. The baby's weight was 30 pounds.

She was given a five-hour treatment with 350 cc. of 0.375 per cent NaCl being injected each hour. Cerebrospinal fluid was under slightly increased pressure 2 cells. Chemistry was not done. Following the treatment the child responded to stimuli eyes reacted to light. Knee and ankle jerks were present. Clonus of the left ankle was present, quickly exhausted. She could be aroused to take her feedings but would go back immediately to a deep sleep. During the next twenty-four hours there was a transitory paralysis of the left face. When the baby was aroused she exhibited no movement of the arm and leg. Abdominal reflexes were

# EVALUATION OF SULFANILAMIDE THERAPY IN ACUTE OTITIS MEDIA AND MASTOIDITIS

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**S**ULFANILAMIDE has proved itself of great value in many conditions, remarkable recoveries being reported from infections with *Streptococcus hemolyticus*, especially when associated with otitic meningitis. The introduction of this drug to the world through the lay press was unfortunate, the publicity interfering with scientific control and observations. Now that the fanfare has died down, sulfanilamide is assuming its real place as a therapeutic agent, its limitations being noted and recorded so that its proper evaluation can be definitely formulated.

The value of sulfanilamide in such conditions as hemolytic streptococcus has been established beyond question, but certainly the drug is too dangerous to use in minor ailments, or in those cases in which no diagnosis has been made. There are also conditions in which the drug is contraindicated, as its action masks the symptoms of the disease and sometimes causes many complications, especially agranulocytosis and other blood conditions that can cause fatal results.

One proved inefficacy of the drug is in bone involvement such as osteomyelitis, and now we are finding that the mastoid process is unaffected by sulfanilamide. Despite the fact that many competent authorities still feel that it is useful in acute otitic infections, considerable thought should be given to the fact that many cases of acute mastoiditis cleared up completely without coming to operation before sulfanilamide was introduced.

There is as yet no definite evidence that sulfanilamide will prevent extension of infection from the middle ear to the mastoid cells. Ballenger *et al*<sup>1</sup> have proved definitely that dead spaces and

protected foci such as paraurethral crypts and follicles were the cause of failure in cases where sulfanilamide failed to produce a cure. Their explanation was that these dead spaces were not reached by an adequate amount of blood laden with sulfanilamide and associated defense agents manufactured by the host. In mastoid infections we have an analogous situation. When infective organisms invade the mastoid cells, swelling and edema take place in the septums and in the mucous membrane lining the cells, and shut off the blood supply from the nutrient vessels supplying them. Necrosis, thinning, absorption of the septums, and coalescence thus take place unaffected by the sulfanilamide, with symptoms so masked that the process continues as a chronic suppuration of the mastoid bone, sometimes indefinitely without any general constitutional symptoms. It may even end up in a sterile abscess with increasing destruction and eventual complications.

Kopetzky<sup>5</sup> made the interesting observation in his petrositis cases complicated by meningitis that sulfanilamide therapy eliminates the hemolytic streptococcus infection from the body fluids and tissues, but it does not seem to eliminate them in active osseous lesions. He feels that where there is a focus of infection in the pyramid or in the mastoid process, surgery should be employed to eradicate it.

Lockwood and his associates<sup>2</sup> also proved that where localized infections containing necrotic material occurred, such as in mastoiditis, sulfanilamide therapy diminished in effectiveness on the hemolytic streptococcus.

Benjamin W. Carey, Jr, of Boston,<sup>3</sup> evaluated the results of sulfanilamide in acute otitis media. Of 8 cases studied

at the Children's Hospital, Boston, 2 required mastoidectomies after adequate therapy. He noted that while the aural culture became sterile, x rays revealed increasing destruction of the mastoid cells. His conclusion was that sulfanilamide was not as efficacious in the treatment of acute otitis media as in other types of infections that are caused by the Beta Hemolytic Streptococcus.

Care should be used in administration of this drug to Negroes, as they seem unable to tolerate it. From personal communications and observations, sulfanilamide administered to Negroes caused an immediate drop in the white count with a threatened agranulocytosis.

There has been some misunderstanding in x ray interpretation of mastoid findings where sulfanilamide has been used. Law<sup>7</sup> and Taylor<sup>8</sup> have shown that a change in density takes place in the mastoid cells, the septums thinning out considerably so that the mastoid assumes a transparent aspect giving the impression of a destructive process going on. They advise the use of stereoptic views in such cases only so as to permit proper inspection of the mastoid cavity.

The operative findings in acute mastoiditis following use of sulfanilamide were very impressive. In practically all cases, marked cell destruction was noted and in many cases this destruction extended to and exposed the sinus and dural plates. In several cases destructive channels could be demonstrated leading directly from the mastoid tip to the dural or sinus plates.

Sulfanilamide should be administered following mastoidectomy. Such therapy has been found to result in a less eventful postoperative course.

The cases enumerated below are those studied at the Beth Israel Hospital—cases admitted from January 1 to June 1, 1939.

*Case 1*—D. M. B., male, aged 3. Previous history negative. Present illness six days prior to admission the patient was treated for an upper respiratory infection, cough, temperature 104° F. and aural pain with some edema behind the left ear. Paracentesis was performed

in both ears, and prontosil and sodium bicarbonate were prescribed by the family doctor. Admitted to the Beth Israel Hospital on December 26 with a diagnosis of bilateral O.M.P.A. and nasopharyngitis. Examination showed the right ear discharging with fullness over the posterior quadrant of the drum. There was no sagging of the roof canal and no edema over the mastoid. The left ear showed a semi-hemorrhagic discharge with a slight edema over the mastoid region and pain on pressure. Dr. Kopetzky examined this child and on noting a contracted left ear canal periostitis over the mastoid and cervical adenitis, he advised operation. Sulfanilamide was started on December 31 in doses of 7½ gr. every four hours, together with an equal amount of sodium bicarbonate, until January 2 when a drop from 17,400 to 5,900 in the white cell count was noted with a simultaneous drop in temperature and appearance of cyanosis. Sulfanilamide was stopped and methylene blue given intravenously. The cyanosis cleared up immediately. The aural discharge stopped, the temperature dropped to 99° F. and the postauricular edema disappeared. On January 3 Dr. Kopetzky re-examined the case and noted the condition in the left ear improved, the edema and pulsation gone, and reservoir sign absent. X ray examination on December 30 showed impaired aeration of the mastoid cells on both sides with the sinus and dural plates intact. On January 4 the temperature commenced to rise and reached 104½° F. the next day. Pain and edema over the left mastoid recurred. A blood culture was negative. On January 5 a simple mastoidectomy was performed by Dr. Kopetzky. He found a fistulous tract penetrating the cortex in the region of the spongy portion. The cortex was entered through the fistulous opening and the antrum located and explored. It was found to be filled with pus. The sinus plate was exposed. The mastoid cells were everted. Pus cultured from the mastoid showed Streptococcus hemolyticus. Following mastoidectomy the child ran a stormy course, the temperature fluctuating from 100° F. to 105½° F. finally dropping to normal on January 18. From then on the patient ran an uneventful course until February 8, when he was discharged.

*Case 2*—S. L. male, aged 6. Had mumps and abscessed ears several years ago. Present history: a bilateral paracentesis was performed on March 10 and the ears discharged profusely. Admitted to the hospital on April 1. A greenish purulent discharge pulsating under pressure was present in both ears. X rays taken on March 31 showed a bilateral otitis media with

evidences of softening Sulfanilamide was started on April 7 with an initial dose of 25 gr, followed by 8 gr every four hours, together with 10 gr of sodium bicarbonate. In all, about 300 gr were given. The blood showed a concentration of sulfanilamide, averaging from 1.7 to 4.6 per cent mg per 100 mg of blood. On April 8 the left ear became dry, while the right continued discharging. Examination on April 10 disclosed the left ear completely healed. The right ear still showed a copious pulsating discharge under pressure. The drum was edematous and pushed forward. There was marked antral tenderness. A mastoidectomy was performed by the author on April 12. Pus was found beneath the cortex with a large infectious tract leading from the antrum to the tip, with a small exposure of the dura at the sinodural angle. The dura was intact. All cells were found necrotic and were exenterated. He was discharged on April 17 after an uneventful recovery.

*Case 3*—M F, female, aged 11. Previous history: tonsils removed eight years ago, otherwise negative. Present history: on March 18, patient developed high temperature, sore throat, nasal discharge, and aural pain. Family physician administered sulfanilamide, but stopped when a rash developed. Paracentesis of left ear was performed on March 22. Admitted to the hospital on March 27. X-rays showed left mastoid—otic infection with evidence of softening and destruction. Sulfanilamide was administered in an initial dose of 30 gr, followed by 10 gr every four hours. The blood concentration showed 3.6 per cent mg per 100 cc of blood the first day, and 7 per cent three days later. In all, she received 260 gr. She felt fairly well, so that on April 2 she was discharged from the hospital after her temperature had been normal for four days, mastoid pain and tenderness had completely disappeared, and the left ear was practically dry. On April 5, the temperature again rose to 101 F, aural discharge reappeared, and a pulsating, sagging drum became visible. She was returned to the hospital on April 8. A simple mastoidectomy was performed by the author on April 10. The operative findings showed destruction beneath the cortex, with the cells necrotic and filled with pus and granulation tissue. A culture taken from the mastoid showed *Staphylococcus aureus* hemolyticus. She was discharged from the hospital on April 2, after making an uneventful recovery.

*Case 4*—H M, male, aged 6½. History of sore throat, nasal discharge, and pain in the left ear. About 75 gr of sulfanilamide had been

administered by his family physician. Admitted to the Beth Israel Hospital on April 25. The left ear showed a scant pulsating discharge, the drum was edematous, and marked tenderness existed over the mastoid process. X-rays taken on April 25 showed diminished aeration and marked decalcification of the mastoid cells with a tendency to confluence. The blood showed a leukocytosis of 13,300, with 87 polymorphonuclears. On April 26 a mastoidectomy was performed by the author. An infected channel leading from the mastoid tip to the antrum was encountered beneath the cortex. The sinus plate was found necrotic and covered with granulations, while the dural plate near the zygoma was partly exposed. All cells were exenterated. An uneventful recovery took place.

*Case 5*—E S, male, aged 6. Present history: Upper respiratory infection three weeks ago, right drum incised February 6, 1939. Admitted to Beth Israel Hospital on February 13, 1939, with mastoid tenderness over right ear, pulsating discharge, and temperature of 100 F. Sulfanilamide therapy was commenced, 10 gr, together with sodium bicarbonate, being given every four hours until a total of 180 gr were administered. The temperature dropped to normal, but the mastoid tenderness and pulsating discharge continued while the reservoir sign appeared. X-rays taken on February 13 showed evidence of a previous otitic infection in the right mastoid with an area of softening in the postsinal region. A mastoidectomy was performed by Dr Margolin on February 13. The sinus was found to be exposed, with granulation tissue overlying it. A small exposure was present over the dura near the zygoma. An uneventful recovery took place.

*Case 6*—B L, female, aged 2. Previous history negative. Present history: patient complained of a cold four weeks ago with fever of 103 F, tonsillitis, and spontaneous discharge from both ears. Sulfanilamide was administered by the family physician, more than 75 gr being given (exact amount unknown). Admitted to the hospital on January 26 with a purulent discharge from the left ear and temperature fluctuating from 99 F to 102 F. A mastoidectomy was performed by Dr Dlugash on January 28. The mastoid cavity was filled with pus and granulation tissue. An uneventful recovery took place.

*Case 7*—I H, male, aged 4. Present history: three weeks ago patient developed an acute cold followed by cough, fever, and pain in the right ear. Sulfanilamide therapy was given by the family physician, first neoprontosil, and

later sulfanilamide. Admitted to the hospital on March 27. A mastoidectomy was performed by Dr Lobel. It showed an extensive destruction in the left mastoid extending toward the base of the left pyramid. There was also a destruction of the apical and suprasinal cells. A culture of pus from the left ear showed *Streptococcus hemolyticus*. The patient was discharged from the hospital on April 5 making an uneventful recovery.

*Case 8*—S. R., aged 31. Previous history frequent attacks of aural discharge for the previous four days. Admitted to the hospital on April 6 with pain over the right mastoid, profuse aural discharge, sagging of the postauricular canal and temperature of 101 F. Sulfanilamide therapy was started, 10 gr being given with an equal amount of sodium bicarbonate every four hours, until 70 gr were given. X rays on April 7 showed a marked diminution in aeration of cells of the right mastoid. A mastoidectomy was performed on April 8 by Dr Moshinsky. An abscess was found at the tip with polyps and granulation tissue in the sinodural angle. All mastoid cells were exenterated. Culture of the pus showed *Streptococcus hemolyticus*.

*Case 9*—A. L., male, aged 37. Previous history negative. Present history three weeks ago developed pain in both ears. A bilateral paracentesis was performed on April 19. The left drained profusely and the right continued to be painful. The temperature rose to 104 F accompanied by a chill. Admitted to the hospital on April 28 with a temperature of 99½ F which rose to 104 F. An x ray taken on April 28 showed a diploic left mastoid with only a few cells on the right with diminished aeration. The pyramids were normal. Prior to admittance to the hospital the patient had been given 70 gr of sulfanilamide by his private physician. A mastoidectomy was performed by Dr Bell, who found a perisinal abscess around the jugular bulb with sclerotic bone. The cortex was sclerotic and was penetrated with an electric burr. With the exception of a few cells containing pus, a large cavity in the region of the jugular bulb was located and found to contain pus under pressure. An exposure of the sinus was made, and the necrotic bone over it removed. A culture of the pus found in the bone showed nonhemolytic *Staphylococcus albus*, while *Streptococcus* was found in the smear but failed to grow in a culture.

*Case 10*—L. H., male, aged 3. Present history acute cold with cough and sore throat. Given sulfanilamide therapy by his family physician. Admitted to the hospital on January

25 with temperature of 100 F and both ears discharging. X rays taken on January 25 showed an otitic infection with an exudative involvement of the mastoids. Sulfanilamide therapy was started 5 gr being given every four hours, until 100 gr were administered. The temperature dropped to 99½ F but rose to 102 F on February 6 when sulfanilamide was readministered, giving 5 gr every four hours, until 65 gr were administered. The temperature dropped to 99 F and the patient was discharged on February 10 with a scant discharge in both ears. The patient returned for readmission on February 16 because of a sudden rise in temperature to 103 F with increased aural discharge from the right ear. X rays on February 16 showed a destructive mastoid on the right side and otitic infection on the left. Sulfanilamide therapy was again started 335 gr being given until the temperature was normal and the symptoms had subsided. The patient was again discharged on March 4 when an x ray showed no evidence of destructive changes in the mastoid. He returned for readmission to the hospital four days later with a profuse right aural discharge. A mastoidectomy was performed by Dr Spielberg on March 11 which showed pus under the cortex, the entire mastoid being broken down and filled with granulation tissue. There was no exposure of dura or sinus. The patient was discharged from the hospital on March 19.

*Case 11*—R. L., male, aged 4½. Tonsils removed when 3 years old. Left ear discharging for past month. Sulfanilamide was given by his private physician receiving in all 200 gr. Admitted to the hospital on March 4 with a copious aural discharge, pulsating edematous drum reservoir sign and mastoid tenderness. X rays taken showed otitic infection with softening of septums. A mastoidectomy was performed by the author on March 8. A cavity was found beneath the cortex, the cells being necrotic and filled with granulation tissue. Large zygomatic cells were found diseased and filled with granulation tissue, and were exenterated. The dural plate was uncovered and found intact. The child was discharged from the hospital on March 14 making an uneventful recovery.

*Case 12*—E. F., male, aged 8. Previous history chronic discharge from ears. Has suffered from sinus trouble since 2 years of age. Present history pain in the right ear for past few days with temperature of 102 F and mastoid tenderness. A paracentesis was performed on February 13 on the right ear. Sulfanilamide was



given, in all about 150 gr being administered. The temperature subsided and the discharging ear was almost dry, when on February 23 edema appeared behind the right ear. Examination revealed a sagging roof canal, edematous drum with marked mastoid tenderness. He was admitted to the hospital on February 23. A mastoidectomy was performed on February 24 by the author. All mastoid cells, especially at the tip, were necrotic. A huge antral opening was found filled with granulation tissue, while the dura was intact. A culture taken from the mastoid showed *Streptococcus hemolyticus*. The child was discharged from the hospital on March 3 and is still under treatment.

## Conclusions

In using sulfanilamide we are dealing with a treacherous drug of enormous therapeutic quality that has a decided influence in hastening recovery in infections with the hemolytic streptococcus. It is, however, of no value in bone involvement. With sulfanilamide therapy the temperature in an acute mastoiditis may become normal within twenty-four

hours and all toxic symptoms and tenderness over the mastoid disappear. Yet x-rays may show increasing destruction.

While the number of cases studied is too small for definite conclusions, the operative findings lead us to believe that sulfanilamide is contraindicated in early aural conditions.

Despite the good effect and rapid cures reported, physicians should not administer this drug in minor infections, such as tonsillitis or otitis media.

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- 7 Law, F M Personal communication to author
- 8 Taylor, H. K. Personal communication to author

## FLIES IN THE OINTMENT

The resolution passed by the Joint Committee on Professional Relations of the Medical Society of New Jersey and the New Jersey Pharmaceutical Association at a recent meeting, dealing with the subject of radio medical advice and advertising of proprietary remedies—declares the editor of *Hospitals* (Chicago)—should be given the thoughtful consideration of every individual and every agency concerned with the health and well-being of the American people.

The resolution seeks to curb the prescribing of medicines and the giving of medical advice over the radio except by authorized and responsible medical organizations or official health departments.

To those who realize that the glib talk and subtle suggestion contained in radio advertising of patent medicines and medical charlatany are cleverly designed for the single purpose of commercial profit, the effect may be only emetic, but that there are left vast numbers of the gullible who will believe any hocus pocus if presented in plausible and picturesque words, is

evidenced by the very fact that radio advertising is no exception to the general rule that advertising pays.

But whom does it pay? Certainly not the victims, who in the aggregate spend enough on rainbow chasing, led by the radio will-o-the-wisps, to provide the adequate medical care about which there is so much discussion today.

The very fact that there are such hordes who willingly buy the bogus substitutes for rational medical advice and genuine drugs rather justifies the assumption that if adequate medical service were available to everyone, a large percentage of the population would not accept it.

The hospitals of the country should vigorously uphold the medical profession and the reputable manufacturers and dispensers of legitimate remedies in any effort to prevent false, misleading, and fraudulent advertising to the public of products which are essentially fakes, even though their alleged virtues are intoned in subtle diction or crooned in dulcet tones.

## A "BANG-UP" PLAN

To allow government officials to play with the \$4,000,000,000 political football of socialized medicine would be comparable to using dynamite for a tonsillectomy—the tonsils would indeed be gone, but so would the patient's head—*Catholic Union and Times*, Buffalo

# IRRADIATION AS AN ADJUNCT TO SURGERY IN SUBSTERNAL THYROID—RESPONSE OF A RECURRENT FETAL ADENOMA

IRA I KAPLAN M.D, and SIDNEY RUBENFELD, M D , New York City

(Director Radiation Therapy Department and Associate Visiting Radiation Therapist, Respectively  
Bellevue Hospital New York City)

**I**RRADIATION often serves as a useful adjunct to surgery, especially in the treatment of lesions in inaccessible regions. While diseases of the thyroid gland have been brought under control by judiciously timed operative removal, occasionally a substernal mass presents greater surgical hazards. It is in such instances that radiation therapy is not only the treatment best suited, but is often the only feasible method. The case herein presented illustrates this point.

## Case Report

P M aged 61 an asbestos worker was admitted to the Third Surgical Division of Bellevue Hospital on the Service of Dr Arthur M Wright in November, 1929 complaining of nervousness, headache dizziness and cardiac palpitation of two months duration. These symptoms were slowly progressive. A swelling of the neck appeared but little discomfort was produced therefrom. There was no dysphagia or cough. He had lost 25 pounds in three months.

Examination revealed a moderately emaciated man. On the left side of the neck was a 2 cm sized pulsating mass in the region of the thyroid gland. The mass was soft, irregular and moved on deglutition. A widespread distribution of dilated veins was visible covering the anterior chest root of the neck and both upper extremities. The basal metabolic rate was minus 2.

Operation was advised and performed on November 23 1929 when the left lobe of the thyroid was found to be large, irregular and extending down under the clavicle. The capsule was thickened. Large dilated vessels covered most of the gland. The lower part of the left lobe mass extended far down below the clavicle, pushing the trachea to the right of the midline. The right lobe showed no enlargement or abnormalities.

The operative procedure was a left lobectomy with drainage (see Fig 1).

The tissue removed at operating was examined by Dr Douglas Symmers and the histology reported as fetal adenoma of the thyroid.

Complete subsidence of all symptoms ensued for several months and then the original complaints recurred. The patient was again admitted to the Surgical Service in October 1931, with cough as a prominent symptom. Examination at this time revealed a hard smooth mass that was continuous with the isthmus and extended under the sternomastoid muscle and the manubrium. The right lobe of the thyroid was enlarged. The venous engorgement that had been evident at the previous admission was now even more pronounced. In the roentgenogram a widening of the superior mediastinal shadow with the trachea deviated toward the right was noted. The basal metabolic rate was minus 10. Radiographs of the long bones disclosed no pathologic alterations.

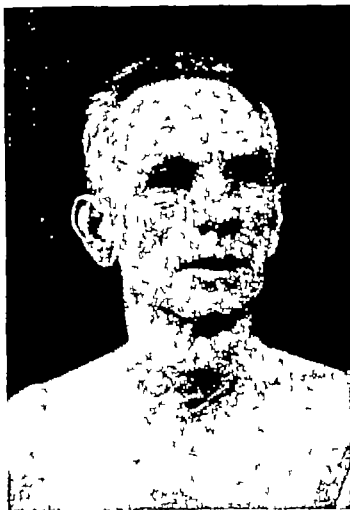


FIG 1 Showing patient in 1929 following left thyroid lobectomy. Note absence of venous engorgement on chest.



FIG 2 Patient in 1936, on admission to the Radiation Therapy Service of Bellevue Hospital. Note tremendous venous engorgement. Patient was inaudibly hoarse and very weak.

In November, 1931, at a second operation, there was found a firm, fixed mass evidently arising from the remnants of the left lobe of the thyroid. The mass was fixed and adherent, and bled profusely so that further surgical removal was impossible.

The patient was able to carry on with moderate comfort until December, 1935, when hoarseness developed, accompanied by some dyspnea.

In April, 1936, when he was referred to the Radiation Therapy Service of Bellevue Hospital, his speech was hardly audible. Examination showed large, dilated veins coursing along both arms, both sides of the neck, and meeting over the manubrium. One large vein ran from the manubrium to the umbilicus (see Fig 2). In the roentgenogram there was seen a large mass in the superior mediastinum, deviating the trachea to the right and compressing it in the anteroposterior and lateral diameters. The mass was independent of the arch of the aorta (Fig 3).

X-ray therapy was administered from April 1 to May 22, 1936. The factors used were 200 kv at 5 ma, with 0.5 mm Cu and 1 mm Al filter and a distance of 50 cm. The anterior and posterior mediastinal areas were irradiated

through a 10 by 15 cm portal. Daily treatments of 150 r were given for a total dose of 2,500 r over each of the two areas. At the completion of this series, the dyspnea was less intense, but the hoarseness and venous engorgement persisted as before. During a period of two months' observation, no evidence of response was discernible, but at the end of that period, venous dilatation became less. With

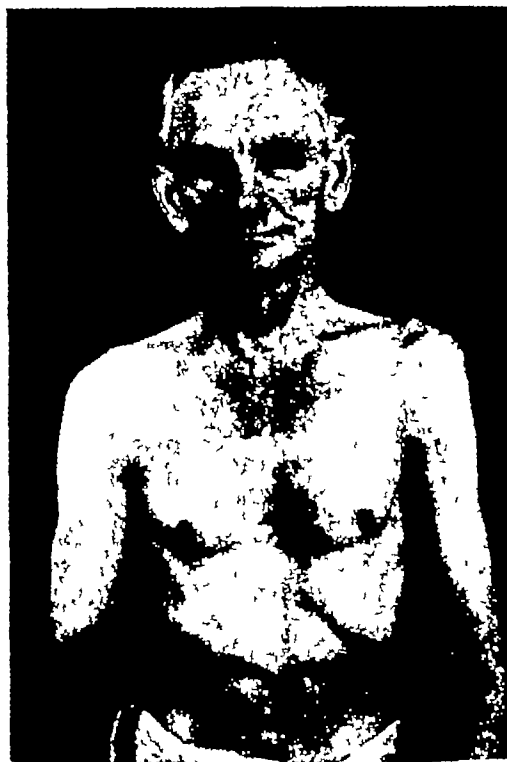


FIG 4 Taken four months later, after x-ray and radium therapy had been instituted. Pigmentation from irradiation persists. Venous engorgement regressed, hoarseness not present.

this favorable sign, it was decided to add additional therapy, this time changing the quality of the x-ray employed. Accordingly, the anterior substernal area was irradiated with the 5 Gm radium pack at a distance of 6 cm through an 8 by 10 cm portal filtered through 3 mm of Pt, giving a dose of 5,000 mg hours daily until a total of 50,000 mg hours was administered. Three weeks later it was noted that the venous dilatation had considerably receded and roentgenographic examination showed that the mediastinal shadow appeared two-thirds its original diameter. The skin over the radiated area exhibited a deep pigmentation. One month later, because a brassy cough became disturbing, additional x-ray therapy was administered using



FIG 3 Showing large mass in superior mediastinum especially toward the left side interpreted as a substernal thyroid



FIG 5 Substernal thyroid has regressed satisfactorily although some residue is still evident

the same factors as before, and again, administering a dose of 2,500 r to both the anterior and posterior mediastinal areas. In October 1930 six months after therapy was commenced the patient showed remarkable amelioration of symptoms, as evidenced by a disappearance of the cough, return of the voice, gain of 20 pounds in weight, recession of the venous engorgement, and an appreciable reduction in the size of the substernal shadow (see Figs. 4 and 5). The last observation in March 1938 found the patient in the same status.

### Conclusions

1 Irradiation is a useful adjunct to surgery in treating conditions in inaccessible anatomic sites.

2 A case is presented in whom a chain of symptoms caused by pressure of an enlarged substernal thyroid was relieved by the administration of x ray and radium therapy.

3 From the satisfactory response obtained in this case, it is suggestive that fetal adenomas are sensitive to irradiation.

Since this report was submitted for publication, the patient was observed in May 1939, in the same satisfactory condition.

### SULFANILAMIDE AND AVIATION

A British aviator found suffering from severe anoxemia as a result of flying at the moderate altitude of 13 000 feet, came to the attention of Dr. F. P. Mackle, medical adviser of Imperial Airways, Ltd., who writes to the *British Medical Journal* that it was found that he had been taking full doses of sulfanilamide for septic tonsillitis just previous to flying. Similar cases have been noted in America and I believe, in

our own air force. A full dose of one of these drugs taken shortly before flying is said to lower an aviator's ceiling by about 5 000 feet. Persons intending to fly as passengers or more particularly as members of an aircraft crew should be warned of the danger of taking these drugs within a few days of flying. I presume that a few days would suffice to ensure elimination of the drug from the system.

# Thirty-Third Annual Meeting of the District Branches

## PROGRAM



### Fourth District Branch

Tuesday and Wednesday—September 19 and 20, 1939  
Headquarters Seymour House—Ogdensburg, New York

TUESDAY, SEPTEMBER 19—2 00 P M  
(Standard Time)

Auditorium, Nurses' Home, A Barton Hepburn  
Hospital

Skin Clinic—John R Schermerhorn, M D,  
Schenectady

"Breech Delivery"—Newell W Philpott, M D,  
Montreal, Attending Obstetrician, Royal  
Victoria Hospital  
(Illustrated by colored movies)

'Head Injuries"—Arthur R Elvidge, M D,  
Montreal, McGill University

For purposes of discussion, a practical classification of head injuries will be formulated. Clinical methods of investigation and treatment of various types and grades of head injury will be reviewed, stressing the importance of the immediate appraisal of the type and severity of the injury. Indications for surgical interference will be discussed.

EVENING SESSION—7 00 P M

Ogdensburg Country Club (Route 37)

Dinner, Grant C Madill, M D, Ogdensburg—  
Toastmaster

Address by Terry M Townsend, M D, New  
York City, President, Medical Society of the  
State of New York

"Greek Health Resorts in 500 B C"—Emerson  
Crosby Kelley, M D, Albany

Health resorts were located in several parts of  
Greece in 500 B C. This illustrated lecture will

show how a patient was received and treated at  
these resorts. Pictorial representation of some  
of the diseases of the early Greeks will be made  
and the background and medical training of  
Hippocrates will be presented.

WEDNESDAY, SEPTEMBER 20—10 00 A M

Auditorium, Nurses' Home, A Barton Hepburn  
Hospital

"Physician's Responsibility in Child Behavior  
Problems"—Marvin Israel, M D, Buffalo,  
Asst. Pediatrician, Children's Hospital

Many medical conditions, such as habit  
spasms, temper tantrums, recurrent vomiting,  
malnutrition, depressed states, attacks of faint-  
ing, etc., will, upon analysis by the family  
physician, be found to be the manifestations or  
results of behavior problems. The modern  
family physician accepts his responsibility in the  
recognition, treatment, and prevention of these  
behavior difficulties and is prepared to discuss  
them helpfully with the perplexed parents.

"Carcinoma of the Colon"—Grant C Madill,  
M D, Ogdensburg, Chief Surgeon, A Barton  
Hepburn Hospital

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Entertainment will be provided for the ladies

Physicians and their wives will be granted the  
privileges of the Golf Course on Tuesday and  
Wednesday

## Sixth District Branch

Thursday—September 21, 1939

Hotel Arlington—Binghamton, New York

## MORNING SESSION—10 00 A M

*(Daylight Saving Time)*

Analysis of Abnormalities Disclosed by Routine School Health Examinations —Marjorie F Murray M.D. Cooperstown Pediatrician in Chief Mary Imogene Bassett Hospital

Discussion to be opened by Herbert W Fudge, M.D. F.A.C.S. Elmira

Health examination records of 590 rural school children reviewed—abnormalities of teeth and tonsils consistently high while nutritional orthopedic, and cardiac abnormalities recorded varied greatly in frequency from school to school. Few new defects found after the first few grades. The value of such routine examinations is questioned.

Carcinoma of the Gastrointestinal Tract —Carl Eggers, M.D. F.A.C.S. New York City Clin. Prof. Surgery New York University College of Medicine Prof. Clin. Surgery

New York Post-Graduate Medical School  
Columbia University

Discussion to be opened by Martin B Tinker M.D. F.A.C.S. Ithaca

A presentation of carcinoma of the esophagus stomach colon, and rectum. Emphasis is laid on diagnosis of these conditions the importance of pre and postoperative treatment is stressed. The present day operative approach and the division of the operations into stages is described. The subject is illustrated with lantern slides.

1 00 P M —Luncheon and introduction of guests

## AFTERNOON SESSION—2 00 P.M.

Business Meeting—Election of Officers

Digitalis Its Use and Abuse —Edward C Reifenstein M.D. Syracuse Prof. Medicine Syracuse University College of Medicine

## Third District Branch

Friday and Saturday—September 22 and 23, 1939

Hotel Lenape—Liberty, New York

## FRIDAY SEPTEMBER 22—2 00 P M

*(Daylight Saving Time)*

Diagnosis of Carcinoma of the Lung —George G Ornstein, M.D. New York City Assoc. Prof. Med. New York Medical College and Flower Hospital Assoc. Clin. Prof. Med. New York Post-Graduate Medical School Columbia University

Discussion to be opened by Frederic W Holcomb M.D. Kingston

Pneumonectomy in Man —Louis R. Davidson M.D. New York City, Asst. Prof. Clinical Surgery New York Post Graduate Medical School Columbia University

Discussion to be opened by Joseph Jacobson M.D. Kingston.

Complete extirpation of the lung is performed in cases of either marked chronic pulmonary suppuration or in cases of bronchial carcinoma. The development of this procedure has been from single lobectomy to multiple lobectomy and now to pneumonectomy. The present tendency is away from the tourniquet technique to that of

intrahilar ligation. The surgical problem is illustrated by lantern slides.

Specific Therapy of the Pneumococcal Pneumonias —Jesse G M Bullowa, M.D. New York City Clin. Prof. Med., New York University College of Medicine

Discussion to be opened by L. Whittington Gorham M.D. Albany

Chemotherapy vs. serotherapy immunity and resistance, local and humoral enhancement of body defense destruction of invading pneumococcus factors involved advantages and disadvantages of serum and of sulfapyridine failures and their causes. Results in rotated cases important adjuvants to therapy. How shall the physician manage his patients with pneumonia?

Wiring and Electrothermic Coagulation of Aneurysms —Arthur H. Blakemore M.D. New York City Department of Surgery College of Physicians and Surgeons, Columbia University

Discussion to be opened by John L. Edwards, M.D. Hudson.

A method of wiring aneurysms will be described in which the velocity of blood flow through the aneurysm is used as a guide to the amount of wire necessary to cause immediate and adequate clotting within the aneurysm. The results of the use of this method in 21 cases of aneurysms will be presented. Lantern slides of various types of arterial aneurysms, including the picture of an intracranial aneurysm treated by this method, will be shown.

#### EVENING SESSION—7 00 P M

Informal Dinner Address by Terry M Townsend, M D, New York City, President, Medical Society of the State of New York

Dancing will follow

#### SATURDAY, SEPTEMBER 23—9 30 A M

"Chronic Arthritis from the Standpoint of the Practicing Physician"—Howard K Thompson, M D, Boston, Mass, Asst Prof Medicine, Tufts College Medical School

Discussion to be opened by Philip L Forster, M D, Albany

What do you mean by orthodox or conventional treatment? What are we to believe is the latest theory as to the cause? What about vaccine? And the rumpus about gold salts, diet, and proteins? Is there any campaign a family physician can carry out without elaborate equipment and hospitalization?

"The Biological and Therapeutic Effects of Artificially Induced Fever"—Charles M Carpenter, M D, Department of Bacteriology, and Stafford L Warren, M D, Department of Radiology, University of Rochester School of

Medicine and Dentistry, Rochester, N Y

Discussion to be opened by Stephen H Curtis, M D, Troy

The biological effects of fever on the host and infectious agents will be discussed with special reference to the thermal death time of the gonococcus and *Treponema pallidum*. The treatment of syphilis and gonococcal infection by fever will be described. It will include the selection of patients for treatment, their care during fever therapy, and the results of treatment.

"Problem Fractures about the Elbow Joint"—

Clay Ray Murray, M D, New York City, Assoc Prof Surgery, College of Physicians and Surgeons, Columbia University

Discussion to be opened by Mahlon H Atkinson, M D, Catskill, and William T Shields, Jr, M D, Troy

Subject will be presented from the standpoint of the recognition by the general practitioner of those cases which entail particular difficulties and the need of expert detail treatment and in which, if such treatment is delayed, disaster may result.

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Hotel accommodations will be available at the Hotel Lenape

Golf may be played at the Sullivan County Golf Club

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The Women's Auxiliary will be entertained by the Women's Auxiliary of the Sullivan County Medical Society

### Seventh District Branch

Thursday—September 28, 1939

Auditorium of Recreation Building, Veterans' Hospital—Canandaigua, New York

#### MORNING SESSION

9 45 (*Eastern Daylight Time*)—Registration

10 00 Promptly—Motion Pictures. These are sound productions by the MGM Studios recently released.

"One Against the World" (Dr MacDowell who performed the first major operation and gave the world the science of surgery)

"The Story of Dr Jenner" (England's country doctor who discovered vaccination against smallpox)

"They Live Again" (Drs Banting and Best's discovery of insulin)

"That Mothers Might Live" (Sammelweiss

who brought modern sanitation to childbirth)

11 00 Address "The Quality of Medicine"—Dr Nathan B VanEtten, President-elect of the American Medical Association

11 20 Address "Our Health"—Dr Edward S Godfrey, Jr, New York State Commissioner of Health

11 40 Address "Political Medicine"—Dr Terry M Townsend, President of the Medical Society of the State of New York

12 00 Report of the nominating committee. Election of officers

Those who wish to visit the beautiful Sonnenberg grounds (part of the Hospital Campus)

will be escorted by members of the hospital staff on a short walk

1:00 Dinner served in the main dining room (Building I) Group Picture taken at Main Entrance

### AFTERNOON SESSION

#### Demonstrations

Surgical Emergencies—Narrator Dr John J Moorhead, New York City

Care of Premature Infants—Narrator Dr Bur tis B Breese, Jr Rochester Assisted by Dr Philip M Standish Canandaigua and Sarah Wheeler R.N Rochester General Hospital

Peripheral Vascular Diseases—Narrator Dr Herman E Pearce Rochester Assisted by Dr James M. Flynn, Dr Charles Gibbs Dr Charles Lakeman all of Rochester

Physiotherapy—Demonstration of apparatus and presentation of cases to illustrate results Narrator Dr Louis Lopez, Canandaigua Assisted by Mr Peter Montville and Mr Jack Blaustein, aides

Occupational Therapy—Results in reconstruction and re-education with demonstration of apparatus used. Narrator, Dr Raymond Wafer Canandaigua Assisted by Mr Horace Funk Miss Jane Leary and Mr Beverly Mlangolarra, aides

## Attention Doctors!

### RE WORKMEN'S COMPENSATION

Physicians who are registered to practice under the Workmen's Compensation Law will avoid a great deal of trouble and annoyance in the collection of their bills if they will make it a practice to send in the C 104 report within 48 hours after seeing a compensation case for the first time, and will file a notarized C-4 report within 20 days. It is important for the physicians to send the 48-hour and the 20-day reports to the Department of Labor and to the insurance carrier or employer. If physicians cannot immediately ascertain the name of the carrier send the reports to the employer and to the Department of Labor and then to the carrier when the name is ascertained.

A review of the records of the Department of Labor indicates that many physicians do not file their reports promptly and fail to notarize the C-4 report. Not only would the payment of bills be facilitated by prompt reporting, but the payment of compensation to the claimant would be greatly aided. We urge all county societies to stress the importance of this at their meetings and in their bulletins.

We have been requested by the Department of Labor to instruct physicians, who appear before a referee to give testimony, to request the referee to make an award for such testimony. Through inadvertence, referees occasionally fail to make an award, making it necessary for the doctor to report the matter to his county society or to the Department, thereby causing considerable delay in payment. Physicians should bear in mind that in accordance with Rule 21 promulgated by the Industrial Commissioner the referee may refuse to make an award to a physician for testimony if he has failed to file the proper reports promptly and in sufficient detail as required by law.

Physicians are also requested in the future to apply to their local county medical societies for a supply of C 104 and C-4 reports rather than to the Department of Labor. A supply will be kept on hand by each county medical society, from whom the physician may obtain the forms either by applying in person or by mail, enclosing the necessary postage.

DAVID J. KALISKI, M.D., *Director*



# Medical News

## New Low in Diphtheria Morbidity and Mortality

**I**N 1938, new low morbidity and mortality records for diphtheria were established in the state, exclusive of New York City. According to the annual report of the State Division of Communicable Diseases for that year, there were reported only 163 cases and 12 deaths compared with a previous minimum of 203 cases and 22 deaths in 1937 and a previous maximum of 11,916 cases in 1921 and 1,031 deaths in 1900.

With the exception of small outbreaks in two state institutions, there were no epidemics of diphtheria during 1938. Letchworth Village, a state institution for mental defectives in Rockland County, experienced in February an outbreak of diphtheria, comprising 10 cases and 1 death. Craig Colony, a state institution for epileptics in Livingston County, had 9 cases and 2 deaths from diphtheria during the year. Rochester State Hospital reported 7 cases with 2 deaths. The cases occurred at various times during the year.

Thirty of the fifty-seven counties in the state outside of New York City were without reported diphtheria cases in 1938 as compared with eighteen such counties in 1937. Forty-five of the sixty-eight upstate cities having 10,000 or more inhabitants remained free from diphtheria throughout the year, as compared with forty-three diphtheria-free cities in 1937. Little Falls has had no cases of diphtheria since 1929. Newburgh has been without a single reported case of diphtheria since April, 1931. In 1938, there were 12 cases in Buffalo and 7 in Rochester. In 1927, there were 737 cases in Buffalo and 505 in Rochester.

The morbidity rate was highest in places of 50,000 to 250,000 population. The fatality rate was highest in places of over 250,000. Of sixty-eight places with a population over 10,000, forty-five had no cases and sixty-five had no deaths. Of fifty-seven counties, thirty had no cases and forty-eight had no deaths.

## Federal-State Teamwork to Fight Syphilis

**M**ORE than half a million dollars has been made available for the federal-state program of venereal disease control.

Dr. Thomas Parran, Surgeon General of the United States, announces \$297,398 has been allotted to New York State to be matched on a dollar-for-dollar basis for use in the program. The allotment was made under the La Follette-Bulwinkle bill passed at the last session of Congress appropriating \$5,000,000 for venereal disease control during the coming year.

In addition to the \$594,796 thus made available in the Empire State, Dr. Parran states the

sum probably will be augmented by special grants from foundations and private organizations and by local appropriations.

While this represents the largest sum ever made available for such a control program in any one year, Dr. Parran stresses that "funds now available do not yet approximate the estimates considered by medical and public health authorities to be necessary for the most effective public campaign against syphilis and gonorrhea."

The major portion of the funds will be spent for clinical and educational work, it was stated.

## Few Health Hazards in Roadside Eating Stands and Camps

**M**AJOR health hazards apparently exist in only a relatively small proportion of roadside eating stands and tourist camps in the state if one applies as a criterion final data submitted by the Division of Sanitation on inspections of 1,768 such establishments along some of the main highways outside the larger centers of population.

Forty per cent of all the places inspected were entirely satisfactory while in an additional 40 per cent there were found conditions which, though undesirable, were of minor importance from the standpoint of the public health. Twenty per cent revealed major health hazards or gross insanitary conditions.

Subsequent reports indicate that about 15

per cent of the places have already made the necessary improvements and are now satisfactory, increasing to 49 the percentage of places which now meet required sanitary standards. Undesirable conditions, whether of major or minor significance, were reported immediately to the operators with recommendations for correction. Local health officers were likewise advised and requested to secure the execution of the recommendations.

Tourist camps, generally speaking, were in better condition than roadside eating stands. This was due undoubtedly to the fact that some of the tourist camps had been inspected in previous years and had eliminated former unsafe conditions.

## County News

## Bronx County

The Bronx County Medical Society will hold its first fall meeting on October 18. An interesting program is being arranged.

## Chemung County

About 100 doctors and guests attended the 103rd annual outing of the Medical Society of the County of Chemung at the Cold Brook Club on August 2.

Dr Raymond A. Turnbull, of Elmira, died on August 13 after an extended illness at the age of 58.

## Delaware County

Dr Orin I. Flint, Jr. of Delhi recently gave a talk at the local Kiwanis Club on model railroad building.

Dr Flint said that model railroading as a hobby is about ten years old in this country and there are model railroad clubs in all of the larger towns and cities. There are about 65,000 men and boys interested in model railroading; there is a magazine devoted to the hobby with a circulation of about 5,000. Dr Flint was one of the organizers of the Delhi Model Railroad Club which has a large and enthusiastic membership, maintains club rooms and plans an active season this fall and winter.

The speaker demonstrated two locomotives each with electric power which he had assembled, also sections of track completed and in process of construction, passenger mail, dining, milk, and express cars, freight cars and cabooses, built to scale and representing in minute detail the authentic equipment of a modern railroad.

## Erie County

An attempt to swim in the rough water of Lake Erie at Thunder Bay resulted in the drowning of Dr. Roy G. Plotz, 45, of Buffalo on August 9.

An authority on internal medicine and public sanitation, Dr. Plotz was visiting with his wife at the summer home of Dr. William F. Gallivan of Buffalo when the accident occurred.

Dr. Plotz was graduated from the School of Chemistry of the University of Buffalo in 1916. He was decorated by the Serbian Government for his public sanitation work there during the World War and later served for several years in the Buffalo Health Department.

In 1924 he received his medical degree from Queens University, Kingston, Ontario, and then started practice in Buffalo. He had been an attending physician at Millard Fillmore Hospital and an assistant professor of medicine at the University of Buffalo.

Dr. Plotz was a fellow in the American College of Physicians and a diplomat of the American Board of Internal Medicine.

More than thirty years practice of medicine and surgery in Buffalo during which he served at one time as president of the Buffalo Academy of Medicine, were in the career of Dr. James Francis Rice, 60, who died August 3 after a paralytic stroke.

He came to Buffalo in 1904 and began a private practice which continued until the fall of 1935.

He was an associate staff member of the Mercy Hospital and the House of the Good Samaritan. From 1921 to 1925 he was secretary and in 1930-1931 president of the Buffalo Academy of Medicine, of which he was also a fellow.

## Essex County

The Medical Society of the County of Essex will hold its fall meeting on the first Tuesday in October.

## Kings County

Of the 16,474 chest x-rays of pupils, parents, and members of the families of school children taken by the Brooklyn Tuberculosis and Health Association during the past ten months 14,773 or 89 per cent, were found to have perfectly normal heart and lung shadows according to announcement by Edward C. Prest of the World's Fair X-ray Demonstration staff. The remaining 1,701 whose x-rays showed abnormal shadows, were referred to their family physicians for further study of the x-ray findings and such medical attention as necessary. If any reports since received from the family physicians of the 146 with distinctive pulmonary abnormalities of the 543 adults referred state that definite evidence of pulmonary tuberculosis was found in 107. Of the 1,168 children whose chest x-rays showed abnormal shadows no cases of pulmonary tuberculosis have been reported.

Dr. Joseph Francis Ward, who during a long and distinguished career in medicine also was one of South Brooklyn's most outstanding civic leaders, died at his home, after an illness of three months, on August 10.

A native and lifelong resident of this borough, Dr. Ward in addition to being active in many professional organizations, was a past president of the South Brooklyn Board of Trade, a post he held for several terms, and of the South Brooklyn 12.15 Luncheon Club.

Dr. Ward also was a past president of the Brooklyn City Savings and Loan Association and of the Metropolitan League of Savings and Loan Associations comprising 150 banks throughout Long Island, Greater New York, and Westchester. A man of many and varied activities, he also was an organizer and the first commander of Park Slope Post, American Legion.

For a number of years before his death, Dr. Ward was a member of the board of managers and also consulting physician and psychiatrist of the Craig Colony State Institution for epileptics at Sonoma, New York.

Dr. Ward was a member of the advisory committee of the New York World's Fair and the advisory committee of the American Congress on Waters, Rivers and Harbors.

During the World War he was chief of tuberculosis service of the base hospital at Camp Upton. He held the rank of major in the Officers Reserve Corps of the United States Army.

Educated at Long Island College Hospital, Chicago University and Baltimore University where he received his M.D. degree in 1899, Dr. Ward served for a time as resident physician of the Baltimore U. Hospital. Later he was chief of the hay fever and asthma clinic of Kings

County Hospital and chief of the diagnostic research laboratory of Victory Memorial Hospital

He was a former president of the Brooklyn Society of Internal Medicine, a fellow of the New York Academy of Medicine, the American Psychiatric Society, and the International Society for the Study of Epilepsy and a member of the Pediatrics and Pathological Societies, the South Brooklyn Medical Society, and Theta Kappa Psi

Dr Andrew M Gillen, personal physician to Police Commissioner Valentine and a widely known obstetrician and a practicing physician in Brooklyn for forty years, died on August 15 at the Long Island College Hospital after an illness of several months. Death came on his sixty-fourth birthday. He was born in Brooklyn

During his career as a physician Dr Gillen delivered nearly 8,000 babies. He was regarded as one of the city's leading obstetricians and also specialized in pediatrics. Four years ago Commissioner Valentine appointed him an honorary police surgeon.

Dr Gillen attended St Francis College and matriculated at Long Island College Hospital and later at the Coney Island Hospital. He received his medical degree at the age of twenty-one. Prior to the Walker administration he served two terms as alderman.

Early in his career Dr Gillen became house surgeon of the Reception Hospital at Coney Island and afterward was a member of the medical staff of St John's Hospital in Long Island City. For twelve years prior to the summer of 1929 he was chairman of the medical board of Coney Island Hospital.

Dr Gillen had been identified with the Shore Road Hospital since its opening and was chairman of its medical board and chief obstetrician at the time of his death. Speaking as chief of the hospital's maternity section in 1931 he said that it is not only "wise economy" but "good health practice for the modern woman to bear her child in a hospital."

He was also a member of the medical staff of the Holy Family and St Mary's hospitals. He was a Fellow of the American College of Surgeons and a member of the Kings County Medical Society.

#### Nassau County

The Nassau County Medical Society will meet on Tuesday, September 26, at 9 00 P M., at the Cathedral House, Garden City. An interesting program is expected.

#### New York County

The first fall meeting of the Medical Society of the County of New York will be held on Oct 23.

A committee of the New York County Medical Society is looking into the periodic health examinations of adults associated with children, to lessen the incidence of contact infections, particularly tuberculosis. Dr Gaylord W Graves, of this committee, reports in part:

"From many reports of successful cooperation between physicians and the general public in

other sections of the United States it is apparent that a standard procedure, facilitating periodic examinations of domestic employees and other adults intimately associated with children, should be instituted through private practice in New York City. The impending demand for such examinations will tend to relegate the problem to the field of public health work, with the possibility of unpopular coercive legislation unless suitable facilities are made available.

"The plan of Westchester County Medical Society which makes possible complete physical examinations, including Wassermann and x ray, at a low standard fee through the service of private physicians, seems to afford the most practicable guide for similar effort by the Medical Society of the County of New York.

"Educational efforts to popularize the idea of periodic examinations of adults *for the sake of the children* deserve the hearty support of the medical profession."

#### Oneida County

The Medical Society of the County of Oneida will hold its first fall meeting on October 10.

#### Onondaga County

The Onondaga County Medical Society will have their first fall meeting in the College of Medicine on October 3.

#### Queens County

The Queens County Cancer Committee has announced that thirty-three Queens doctors have been selected to serve on the speakers' bureau of the committee, which has its headquarters in the Astoria Health Centre, 12-26 31st Avenue, Astoria.

The physicians who will fill speaking engagements during 1939 are:

FLUSHING—William Benenson, Mortimer Schochet, Joseph S Thomas, Edward Veprovsky, Maxwell Lieberman.

JACKSON HEIGHTS—Moses Cohen, Milton Schlesinger, Edward Santora.

ASTORIA—Rudolph Boenke.

CORONA—Charles Miller, Katherine Miller.

ELMHURST—S J Hodkin, Leonard Goldman.

FOREST HILLS—Stanley Alexander, Elmer Kleefeld, C A Renouard.

KEW GARDENS—A X Rossien.

GLENDALE—J James Serwer.

RIDGEWOOD—J R Handelsman.

JAMAICA—Alfred Angrist, Joseph Z Biegel, Frank Dealy, C D Gackenhimer, Vincent Juster, Ida Mintzer, Irving Ponemon, Francis Elias Rubin, Jacob Werne, Joseph Wrana.

HOLLIS—R J Millemann.

ST ALBANS—S Robert Berk.

BELLAIRE—Edward Muendel.

Dr Isaac Ernest Greenberg, Rockaway surgeon, died on July 22 at Rockaway Beach Hospital at the age of forty-seven. He had been ill for several years and was admitted to the hospital as a patient several weeks ago. Death is said to have been due to causes associated with the doctor's service in the World War. After his enlistment in the United States Army for the duration of the World War, he was commissioned a captain in the Medical

Corps and sent overseas. He was active in the Meuse and Argonne offensives and was in charge of Evacuation Hospital No 21 at the front. Later he was transferred in charge of the Base Hospital at Paris.

He located in the Rockaways shortly after his discharge from the service. He built up a successful practice and won recognition as a surgeon. Prior to the last stages of his illness he had been appointed director of surgery at Rockaway Beach Hospital. He was an associate surgeon at Queens General Hospital and a member of the surgical staffs of St Joseph and Long Beach hospitals.

At the stated meeting to be held on Tuesday September 26 there will be a presentation of cases of the Queens General Hospital Medical Service. A group of clinical patients of unusual interest from the wards and the outpatient department service will be presented. The diagnosis, therapy pathologic findings etc will be discussed by members of the medical society and guests.—Drs A W Victor, Goon-

WIN DISTLER, FRANK R. MAZZOLA JAMES R. REULING AND STAFF

#### Schoharie County

During August and early September a series of lectures before the Schoharie County Medical Society on Pediatrics, in the Public Library at Cobleskill were given as follows:

August 10 Physical Examination of Children, Dr Marjorie F Murray Cooperstown  
August 17 Deficiency Diseases of Children, Dr Paul W Beaven, Rochester  
August 24 Infectious Diseases of Childhood, Dr A C Silverman Syracuse, August 31 Diet in Infancy, Dr Charles Hendee Smith, New York City  
September 7 Rheumatic Fever and Heart Diseases, Dr Albert D Kaiser Rochester

A series of postgraduate lectures on Nervous Diseases in conjunction with the Montgomery Medical Society are being given in September. The annual meeting of the Schoharie County Medical Society will be held on Tuesday October 10.

### Deaths of New York State Physicians

Name	Age	Medical School	Date of Death	Residence
David F Armstrong	70	P & S N Y	July 31	Auburn
Milton A. Bridges	45	P & S N Y	August 19	Manhattan
Harold C. Cox	45	Virginia	August 25	Manhattan
William Fairbanks	60	Bell	May 6	Buffalo
Andrew M. Gillen	64	L I C Hosp	August 15	Brooklyn
Jacob Heckmann	68	Gliesen	August 13	Manhattan
Frederick W. James	68	P & S N Y	May 21	Utica
Emma C. Le Fevre	81	Buffalo	May 1	Elmira
Paul Luttinger	53	Univ & Bell	August 11	Bronx
Flaviano E. Parodi	72	Genoa	August 23	Manhattan
Roy G. Plotzer	40	Queen's Canada	August 9	Buffalo
James F. Rice	66	P & S N Y	August 3	Watertown
Harold Rypins	40	Harvard	August 26	Albany
Howardson N. Stoute	40	Univ & Bell	May 9	Manhattan
Raymond A. Turnbull	58	Buffalo	August 13	Elmira
Joseph F. Ward	67	Baltimore	August 10	Brooklyn
John H. Witbeck	73	Bell	August 2	Cayuga

#### IT SAVES PRINTING NEW LABELS!

President Roosevelt has signed a bill postponing until January 1 1940 the effective date of certain labeling provisions of the Federal Food Drug and Cosmetic Act.

The postponement is said to be designed in part, to assist industries which have on hand valuable stocks of labels meeting the requirements of the old law but which fall short of requirements of the new law adopted last year.

#### TO HELP STAMP IT OUT

The French postal authorities have issued a postage stamp with the motto *Pour sauver la Race*. It is an antivenereal disease stamp colored green accepted for current postal use, the small sum spent by the purchaser over and above the ordinary value of a postage stamp being allocated to the antivenereal disease organization responsible to the Minister of Public Health for propaganda in this field.

# Hospital News

## Equitable Compensation Rates Secured by State Hospitals

A COMMITTEE representing the Hospital Association of New York State and representatives of the compensation insurance carriers have agreed upon a schedule of rates which gives the hospitals of the state a just return for services rendered to patients coming under the Compensation Act.

*Hospital Management* reports that the following rates have been agreed upon:

Nassau, Suffolk, and Westchester counties, \$5.25 per day

Dutchess, Orange, Rockland, Putnam, and Albany counties, and including Troy and Schenectady, \$5.00 per day

Balance of the state, \$4.50 per day

*The rates for extras, etc., will be as follows:*

Operating room—Major or Plaster room, with anesthesia, \$15.00

Operating room—Major or Plaster room, without anesthesia, \$10.00

Operating Room—Minor or Cystoscopy room, with anesthesia, \$10.00

Operating Room—Minor or Cystoscopy room, without anesthesia, \$5.00

Crutches, mechanical splints, and special appliances—Deposit of cost

Plaster Cast—Cost of plaster

Plaster Splint—Cost of plaster

Special Nurses (graduate)—Private rate

8-hour duty—Add \$1.00 for meals

12-hour duty—Add \$1.50 for meals

Oxygen therapy machine (tent), \$1.00 per hour

Oxygen inhalation—Cost of oxygen Limit \$15.00 per day

Blood transfusions—Regulation donor's bureau fee plus O. R. if used

E. K. G., Basal, X-ray, P. T., anesthesia and laboratory charges—will accept rates as filed with Industrial Commission by the Medical Society of the State of New York

In addition there are certain services which vary in cost and it has been decided to leave these for adjustment in individual cases

The much discussed point of furnishing information from the medical records has been settled on the following basis:

To minimize and facilitate the effort of the hospitals in furnishing records to insurance carriers and to minimize and facilitate the handling of subpoenas for hospital records for appearances at hearings, the following is proposed:

A form should be devised by mutual agreement which would contain essential information in a compensation case. Once such a form was devised it would be agreed that when an insurance carrier needed information from a hospital record, it would mail such a form to the hospital together with a signed request by the injured person and accompanied by a check to the order of the hospital in the sum of \$1.50 as a fee for securing such information. The above form should contain the caption of the case. If, for any reason, the form cannot be filled out, an abstract of the record should be provided or an explanation made and the fee returned.

## New York Plan Cancels 57,000 Individual Contracts

ASSOCIATED Hospital Service of New York, largest of the approved nonprofit prepayment hospitalization plans in the United States, with just under 1,400,000 subscribers, has announced a new contract for subscribers and the termination of about 57,000 contracts following several months' study of past experience to determine a sound basis for future operation, says *Hospital Management*.

David H. McAlpin Pyle, chairman of the executive committee, reported that need for revisions of the service, popularly known as the three-cents-a-day plan for hospital care, was disclosed by a study of the plan's four years' experience made by the insurance actuary of the service, the medical research and administrative staff and board of directors in cooperation with a Hospital Advisory Commission.

Contracts terminated are those of subscribers who had enrolled by making application directly to Associated Hospital Service. The experience of the plan indicated that it is impossible to carry such subscribers at the present low subscription rates, because that method of enrollment does not permit a proper spread of risk, Mr. Pyle said.

Subscribers in that classification will be helped to re-enroll under the new contract after consideration of their medical history as stated on a special application. Maternity service as provided by the original contract will be offered when delivery occurs before July 1, 1940, and if the subscriber was enrolled ten months prior to the time of delivery. No other benefits will be offered unless the subscriber re-enrolls under the new contract.

## The Army's Rolling Hospital

A SURGICAL hospital on wheels, first of its kind in this country and thought to be one of the finest in the world, was part of the show equipment of the "Fighting First" Division in camp at Redford, New York, in August

The unit, known as the First Army Surgical Hospital, from the Medical Field Service School at Carlisle, Pennsylvania, participated for the first time in maneuvers. Its massive trailers and complete equipment are admittedly still

experimental but it is believed that the mobile operating room, with its attached equipment for a 100-bed hospital, will enable the extension of complete army surgical facilities to a point within four to seven miles of the front lines in time of war.

Thus, by 'bringing surgery to the front' it is hoped that the lives of many nontransportable surgical cases can be saved. Moreover the completely equipped trailer operating room scientifically lighted, heated and screened permits 'a far more satisfactory and sterile operation than any that could possibly be performed in a tent surgeons say.

The surgical hospital which is operated by the First Medical Regiment also from Carlisle

consists of four truck-drawn van trailers, plus a mobile truck mounted power plant.

One trailer is fitted as an operating room with the new green painted, nonglare walls special nonglare, nonreflecting lights an operating table, solutions for intravenous injections and a complete set of surgeon's instruments which permit any operation from lancing a boil to removing a leg or trepanning a skull.

Another trailer is equipped as a complete rolling kitchen with three light, gasoline-burning stoves (which are being tested for general use in the army), a sink with running water and a large ice box in which are kept (besides foodstuffs) the antitetanus typhoid smallpox and other serums the hospital uses.

## Panel Heating

**P**ANEL heating is the term used to designate installations in which the heating coils are imbedded in ceilings or walls. While it is comparatively new in this country it has been in use in the British Isles for many years. *Hospitals* (Chicago) reports that an investigation of its use in British hospitals cites these advantages:

- 1 Floor and wall space free from obstruction
- 2 Less cleaning
- 3 Less danger of cross infection due to less air movement
- 4 No heated surface on which dust can settle and thus encourage the propagation and circulation of germs.
- 5 Freedom from blackened walls over radiators.
- 6 High standard of comfort at low temperature.
- 7 Less drying of air due to absence of high temperature surfaces.
8. Natural ventilation (through the skin) takes place freely and without discomfort

In installation it is recommended that the coils of mild steel pipe be imbedded in a special plaster of the ceiling and where this was done there have been no reports of leakages. There is no reason to expect leakages as there is no evaporation to cause scaling nor any replacement of water in the coils. Temperature control is by control of the temperature of the water in the coils an average of 132 F.

Many hospitals report less frequent need for redecorating. There have been no reports of comparative cost of operation in hospitals but commercial buildings report rather marked savings.

The few installations that have been made in this country indicate a cost of installation from 10 per cent to 15 per cent more than hot water radiator systems, but in hospitals in particular it is probable that decreased cost of operation need for cleaning and decoration and the possibility of better utilization of floor space will more than offset this cost.

## Newsy Notes

### New York City's Low Contagious Mortality Rate

A report by Hospitals Commissioner S S Goldwater M.D. submitted to Mayor LaGuardia August 5 shows that during 1938 the mortality rate in the city's hospitals for contagious diseases fell to 1.8 per cent, lowest to date. In 1937 it was 2.2 per cent. This compares favorably with a 4 to 6 per cent mortality in general hospitals of the greater city. Willard Parker Kingston Avenue, Queensboro Richmond Borough and Riverside Hospitals cared for 12 674 cases in 1938, compared with 11 057 in 1937, the increase coming mainly in measles and whooping cough. There were 2 109 cases of whooping cough hospitalized in 1938 more than for any year in the last two decades. Of all the diphtheria cases reported to the Health Department in 1938 43.7 per cent were hospitalized while 31 per cent of the scarlet fever cases 8.4 per cent of measles cases, and 16.1 per cent of whooping cough patients were sent to the city hospitals. For the first time since 1932 a case of variola was found in the

city. Brought from Portugal, it was sent into Kingston Avenue Hospital Brooklyn for treatment.

It has come to the attention of the Medical Society of the County of Queens that some of the hospitals of the borough have allowed the admission as ward cases on service, of patients covered by the Group Hospitalization Plan. This is directly contrary to the provisions and the spirit of the Plan, and to the approval given to it by organized medicine. Group Hospitalization must not be allowed to add to the already large proportion of free service being rendered by physicians especially since it involves a class of patients who are in no sense of the word medically indigent. —*Bulletin County of Queens*

Many chronic patients can be treated at home just as effectively as in hospitals and at far less expense says the *New York Medical*

*Week* Since existing facilities for the care of chronic disease are admittedly inadequate, home care of suitable cases makes it possible to use hospital beds for patients in genuine need of institutional treatment.

From the sociological viewpoint, the treatment of chronic cases at home helps to keep families together and avoids the demoralization which often occurs when children are left without maternal guidance or mothers are separated from their sick children. The patient, moreover, is usually happier in his own home and brings a more cheerful spirit to his fight against illness.

. . .

Looking toward possible economies and uniform practices in business operation of Rochester hospitals, a newly reorganized Rochester Hospital Council hopes to incorporate in the fall, Theodore C. Briggs, temporary chairman, reports

Incorporation papers and bylaws which will determine the form of the organization are being drawn up by A. Sawyer Fitch, secretary. Wilmot V. Castle is chairman of a committee to arrange hiring an executive director.

Supported for the first time by a \$15,000 Community Chest allocation, it will supersede the previous informal idea-exchanging group of hospital heads.

Dr. Basil C. McLean, superintendent of Strong Memorial Hospital, was appointed chairman of a committee to make a preliminary study of the cost of nursing care. R. E. Frederickson is head of a committee studying uniform accounting systems.

Cooperative purchasing will be the subject of future studies.

Heavy expenses caused by recent removal to a new building and a decrease in income have led officials of Beth David Hospital to seek an extension of time for payment of its debts. A petition filed in Federal Court listed liabilities of \$677,966 and set forth that assets were approximately the same.

If sufficient time is allowed, it is expected that all the obligations of the institution will be met, according to the petition, which asked permission to make an arrangement with creditors under Federal law.

Arthur I. Levine, president of the hospital, said most of the new equipment for the new building, at 161 East Ninetieth Street, had been bought on conditional sales contracts requiring monthly payments. In addition to the equipment creditors, there are about 350 general creditors with claims for about \$65,000, chiefly for merchandise delivered.

Other reasons for the hospital's plight were said to be fewer paying patients and a decline in the charitable contributions on which it relied. The petition asked that the present trustees and directors be continued in charge. If this is not done, charitable persons who have worked to help the institution might become discouraged and cease their help, it was said.

. . .

"The erection of this hospital is the material discharge of our obligation to God and the community," said Archbishop Samuel Stritch in his address dedicating St. Clare Hospital, Monroe, Wisconsin, and he continued "There are two functions to be served, that of our family and that of the public. The first is our consecration to the service of God and the second is our assistance to the sick of this community. This hospital was created out of our love of God and enables us to serve Him through our ministrations to the sick. May we continue to serve Him through this splendid edifice for a long time."

. . .

A pamphlet on "Standards for Outpatient Ophthalmologic Departments" has just been published in mimeographed form by the Welfare Council of New York City. This eighteen-page pamphlet summarizes in concise form the desirable standards in three departments of ophthalmologic care—medical service, nursing service, medical social service. The pamphlet was prepared by the Committee on Medical Standards, Committee on Nursing Standards, and the Committee on Medical Social Service Standards of the Medical Social Service Section of the Welfare Council, and has been approved by the League for Nursing Education and the Standards Committee of the North Atlantic District, American Association of Medical Social Workers, and the New York Academy of Medicine.

The pamphlet may be obtained postpaid for ten cents by writing to the Welfare Council of New York City, 44 East 23rd Street. Stamps accepted.

A limited number of copies are available for free distribution to professional persons desiring to study them in detail.

. . .

Laymen seldom realize the many reasons why hospitalization costs are so high. Hospital care has become increasingly more expensive as it has become more scientific, explains the *Berkeley General Hospital Bulletin*, and has required more and more highly specialized equipment and highly trained personnel. Few realize that the modern hospital normally employs almost twice as many employees as it has bed patients and that besides nurses it employs a corps of workers, including office employees, technicians for x-ray, clinical laboratory, and for physical therapy, social workers, dietitians, cooks, and kitchen helpers, pharmacists, anesthetists, carpenters, painters, gardeners, and maintenance men, orderlies, housekeepers, etc.

The hospital operates on a twenty-four hour basis, which requires three shifts of nurses and other workers. It must also hold itself in readiness to offer complete service on a moment's notice, whether it be work-day or holiday, day or night. Keeping all facilities and a full personnel available for instant use for such "standby" services at all hours is an expensive procedure and is a very important factor in the high cost of hospitalization.

## Improvements

### For Ten More New York City Hospitals

Ten new hospitals costing a total of about \$56 000 000 were proposed by Dr S S Goldwater, Commissioner of Hospitals in a \$102 000 000 capital budget presented before the Planning Commission of New York City on August 14.

The new hospitals in the order proposed were as follows:

Brownsville, Brooklyn general hospital and dispensary 600 beds \$7,800 000 to start in 1940.

Harlem Bronx District Borough of Bronx hospital for tuberculosis patients, 500 beds \$5,300 000, to start in 1940.

Harlem District Manhattan general hospital and dispensary 500 beds \$7 050 000 to start in 1941.

Queens, general hospital and dispensary 500 beds, \$6 650 000 to start in 1941.

Bay Ridge Brooklyn general hospital and dispensary, 800 beds, \$4 050 000 to start in 1941.

Bronx (probably East Bronx), general hospital and dispensary 500 beds \$6 650 000 to start in 1941.

Coney Island Brooklyn general hospital and dispensary 300 beds \$3 000 000 to start in 1941.

Welfare Island Manhattan, cancer hospital 400 beds, \$4,000 000 to start in 1941.

Manhattan West Side, new City Hospital and outpatient department, to replace City Hospital on Welfare Island \$8 600 000 to start in 1941.

Brooklyn, vicinity of Kings County Hospital hospital for venereal diseases, 400 beds \$3 000 000 to start in 1941.

While the program proposes that small appropriations for planning and sites be made in 1941 for most of these hospitals, the major construction would be done in subsequent years and in the case of the last two would not be completed until after 1945.

### In Memory of a Beloved Physician

A few weeks ago in less than a year after the death of Dr Arch B Chappell of Middletown the Dr Arch B Chappell Friendship Fund Committee dedicated a project that had been especially dear to his heart, the cubicleization of the children's ward at the Horton Memorial Hospital. As the Middletown *Times Herald* reports:

"The love and respect in the hearts of those who had been his patients and friends are sufficient, it is felt by the committee, to keep Dr Chappell's memory alive in this generation. But in the decades to come when the last of those who had known the Children's Doctor is gone, the cubicles and other improvements in the hospital ward which had been his special province, will stand as enduring memorials

"The contributors numbered almost 300. The amount received and expended totaled over \$1,500. Each contributor preferred to remain anonymous, each contribution came from the heart.

The committee report revealed that contributions had been received from as far west as California, with several from the Panama Canal Zone, and even from Hawaii. From more than twenty states they came ranging in amount from twenty five cents to \$1.50. In the eyes of the committee, just as it would have been in the eyes of him in whose memory the Friendship Fund was being raised, the little Negro boy who brought in twenty five cents merited thanks in the same degree as those who gave more largely according to their means.

Many of the distant contributors were Army officers whose children had been treated by Dr Chappell when they were stationed at West Point.

Made possible by the total contributions of \$1,524.45 were installation of seven cubicles soundproofing of the Children's Ward and adjacent corridor complete replumbing in the ward enlarging of washrooms and installation of a sterilizer. The cubicles, of steel and glass form virtually private rooms in the ward. Tables for the cubicles were purchased by the Lenten Sewing Club with proceeds from the Charity Ball.

Plans have been filed for a new outpatient building for Harlem Hospital. Costing \$656 000 it provides for a five-story building, 160 by 65 feet.

The Mount Vernon Hospital has recently launched a campaign to raise \$175 000 to build a three story addition to the north wing of the present structure adding 80 beds to the hospital's capacity.

The A. Barton Hepburn Hospital Ogdensburg is installing a new x ray room with a \$20 000 equipment on the first floor of the men's ward. The wing will be made fireproof.

New rooms for the interns have been provided at Flushing Hospital. Additional intern quarters in keeping with the dignity of the medical profession had been greatly needed since 1937 when the size of Flushing Hospital was more than doubled by the construction of the new wing and it was necessary to increase the intern staff gradually from five to twelve. During that time proper quarters for interns were available for only five.

North Carolina is the first State in the Union to have a compulsory immunization law against

diphtheria—*Bulletin of the Buncombe County (N C) Medical Society*



# The Woman's Auxiliary

To the Medical Society of the State of New York

**V**ACATION (Oh magic word!) is drawing to a close and has fulfilled its purpose if we are happy to look forward to the homecoming. Perhaps during some leisure moments we have caught a vision of our role as auxiliary members to a Society as important as that of medicine. If our visions, hopes, and plans should be shared with our fellow members, who could prophesy how far-reaching might be their influence! Let each county auxiliary be represented on our

JOURNAL page at least once a month so that all may receive inspiration from the reading of plans and projects as well as of past achievements.

We should begin the fall session with added zeal because we have added strength—a new auxiliary unit. Let us unite in welcoming Erie County.

Success to us in 1939-1940!

## County News

### Albany County

At the July meeting of the Woman's Auxiliary to the Medical Society of Albany County the following officers were elected for the coming year: Mrs. John J. Clemmer, president, Mrs. Alfred L. Madden, vice-president, Mrs. J. Iveney Dowling, secretary, Mrs. R. C. Kemp, assistant secretary, Mrs. William J. Fitzgerald, treasurer.

The program for the year was outlined. The first meeting of the coming season will be held September 27.

### Cayuga County

After a summer recess, the Woman's Auxiliary to the Medical Society of the County of Cayuga will convene September 21 to formulate plans for the coming year.

### Orange County

On July 11 the Woman's Auxiliary to the Medical Society of Orange County spent the

day at "Braeside," the Orange County Health Camp for underprivileged children, as the guests of Miss Helen Watkins who has so ably conducted the camp for a number of years. Seeing the camp in full action gave opportunity to appreciate so much better what Miss Watkins has done for many of our underprivileged children of Orange County.

In the fall the Orange County Auxiliary plans to raise its quota for the Physicians' Home by a series of teas.

### Queens County

The Woman's Auxiliary to the Medical Society of the County of Queens is planning a Health Institute Day, Tuesday, September 26 at 10:30 A.M. This is to be held in the Medicine and Public Health building at the New York World's Fair grounds. All out of town state members are cordially invited.

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## "DRASTIC POISONS" IN PATENT MEDICINES

The New York *Medical Week* recently called attention, editorially, to a statement of Dr. K. E. Miller, of the U. S. Public Health Service, who has been assigned to advise the Federal Trade Commission on its new responsibilities under the amended Food and Drugs Act.

Commenting on the dangerous products sold to the public without a physician's prescription, Dr. Miller expresses his amazement "that false advertising which insidiously threatens the public health in so many ways should not yet have been recognized as a major public health problem." (*Health News*—May 8, 1939.)

*Medical Week* continues, in part: "Dr. Miller mentions a long list of 'drastic poisons' contained in proprietary products advertised to the public

for intestinal use. Among them are arsenic trioxide, mercuric chloride, pilocarpine hydrochloride, and strychnine sulfate.

Reducing preparations sold freely over the counter in many communities contain thyroid extract, dinitrophenol, and dinitroresol. All of the abortifacients, which enjoy such wide sale, are essentially poisonous.

"There can be no doubt that the advertisements of certain foods, drugs, and cosmetics are a serious menace to the public health. It is to be hoped that the Federal Trade Commission will take its new responsibilities under the Wheeler-Lea Act seriously and will use its full power to purge food, drug, and cosmetics advertising of exaggeration and fraud."

# Across the Desk

## Walking Human Menageries

**B**IG FLEAS have little fleas upon their backs to bite em, And little fleas have lesser fleas, and so ad infinitum. The poet wrote better than he knew for while the fleas may not have little pests biting them behind their backs as it were, they most certainly have them in their little bellies remarks Dr Robert Hegner of Johns Hopkins. Dr Hegner knows what he is talking about too he is professor of protozoology in the School of Hygiene and Public Health at that university. He calls his vastly entertaining book on this subject *Big Fleas Have Little Fleas or Who's Who Among the Protozoa*. His volume is readable enjoyable and enlightening it deserves a tremendous audience, observes the *J.A.M.A.* which welcomes him with loud shouts of joy and satisfaction and declares that he merits a pedestal.

In fact, the fleas are not the only ones to have these tiny pests swimming about in their interiors, nearly every living creature in the heavens above in the earth beneath and in the waters under the earth is infested with them so that it is little exaggeration to say that we are all walking human menageries. They are so widespread and ubiquitous that it is impossible to escape them no matter how carefully we regulate our lives, asserts Dr Hegner. "They are always present in the reservoirs from which we obtain our drinking water sometimes in such numbers as to become a real nuisance. Even the good earth" is full of them and ten samples of soil of different types were found by one inquisitive investigator to be inhabited by 1,600 amebas, 7,400 flagellates, and 15 ciliates per Gm. The more protozoa in the soil it is found the more fertile it is, though which is cause and which effect, has not been determined. It would seem however that the little rascals do not harm the soil anyway. Would that as much could be said for the ones that make their homes in the human interior! Some times they are actually beneficial like the flagellates which inhabit the intestinal tract of the termite ants and help digest their woody food. Deprived of these parasites, the ants starve.

Dr Hegner's book is written for the public and not as a textbook so he lists the protozoa in a little poem to make them easy to remember. It runs

Forward little millions,  
Marching gaily on  
Little naked meba  
Leads the mighty throng  
Comes the green Euglena,  
And Paramecium too  
Followed by the Spore Bearers  
Cavorting two by two  
Onward little millions  
Marching for to see  
If they cannot dominate  
The world and you and me

### "Adam Had 'Em"

This is claimed by Dr Hegner to be probably the shortest poem in the English language, or any other language, including the Scandinavian—

Adam Had 'em. That is the inference from the fact that a large part of us sons of Adam have 'em. We may indeed be chock-a block with them from top to toe, for there are parasites of the blood, parasites of the tissues parasites of the mouth and parasites of the intestinal canal. If the body of a person well parasitized with protozoa were to disappear entirely leaving behind only the parasites declares Dr Hegner a perfect outline of the human form would remain, and even the features would be so clearly discernible that individuals could be recognized.

It may be a bit of a shock to think of ourselves and our friends in this light, and may excuse the mother who wrote to the teacher. Don't tell Mary about her insides. It ain't nice. Yet the cold fact remains that human beings may be infected by as many as twenty five different species of protozoan parasites and since the protozoa live happily together one person may be infected at one time with the entire job lot. Some people seem to be less hospitable to the little beggars and have none at all. Perhaps they are so tough that the parasites soon give up the struggle—like the case of the rattlesnake that bit Bill Jones and then went away and died.

### "Down in the Mouth" Means a Free Lunch

To begin with two species of protozoa are present in the mouths of over 50 per cent of the general population. They are clever enough to locate where they have first chance at the food supply although it must be rather exciting not to say hazardous to be exposed to scalding hot coffee then a bath of ice water followed by the acid of vinegar or lemon and a dose of pepper. The little chaps can take it however and the phrase down in the mouth means nothing sad in their dictionary. It just means free board and lodging. Fortunately for humankind these two species are harmless or the kisses of young love might be fatal and the political candidate on his canvassing tours might rival Herod in a slaughter of infants. In the golden age to come all politicians will perhaps be examined for safe kissability before they are allowed to run.

But woe to the tiny wigglers that let themselves be carried down the gullet. That ride down red lane is their last, for the gastric juice is fatal for them. No living protozoa are found in the human stomach.

This audience with microscopes at elbow, and shelves of books on the subject in easy reach do not need to be told anything about the amebas the flagellates, the ciliates that inhabit the small and large intestines, most of them harmless. Dr Hegner sums up our infested condition in another poem thus

\* *Big Fleas Have Little Fleas or Who's Who Among the Protozoa*. By Robert Hegner Professor of Protozoology in the School of Hygiene and Public Health of the Johns Hopkins University. Based on Messenger Lectures, Cornell University 1937. Cloth Price \$3. Pp. 255 with 127 illustrations. Baltimore: Williams & Wilkins Co., 1938.

Amebas abound in your kisses  
And flagellates lurk on your lips,  
Your bowels are all swarming with microbes,  
B *Coli*, Giardia, and sich

Last night as you lay on your pillow,  
A rhumba was danced in your blood,  
Corpuscles were broken asunder,  
And trypanosomas made love  
You're nought but a mass of corruption  
Passed down from a simian tree  
To Adam and Eve and their offspring  
Who says we are equal and free?

### A Painful Side of It

A large part of Dr Hegner's book is devoted to his investigations of amebic dysentery, sleeping sickness, malaria, and other diseases caused by pathogenic protozoa. He has traveled to many regions here and there around the globe to pursue his inquiries, and has experimented with guinea pigs, frogs, rats, monkeys, chickens, canaries, and other birds and animals. One of the most painful features of his dietary experiments, he says, "was that of feeding good beefsteak at sixty cents per pound to rats, while our meager salaries made it necessary for us to live on Philadelphia scrapple and on an occasional laboratory animal, such as a chicken or a rabbit, that had served its purpose as an object of experiment. I even suspect that one of my associates actually selected chickens for his investigations so that he could later eat up the evidence."

Of course the ideal method would be to experiment on human beings in such investigations, and no doubt scientific progress would be more rapid. "I have suggested," cheerfully remarks Dr Hegner, "that some of our less desirable professors might volunteer for this purpose, but thus far none of them has been willing to sacrifice himself for the cause of science, even though I have given my promise that if anything went wrong, I would guarantee them a lovely funeral with only protozoologists as pallbearers. Consequently we are still using rats." Certain of "our more dignified colleagues" were honored by having various balantidia that seemed to look like them dubbed with their names, so that "we

had the unique pleasure of observing these solemn professors swimming about under our microscope."

### A Campaign to Save Millions of Lives

We little realize, here in our northern climate, the terrible ravages wrought by one of these tiny protozoa, the malaria parasite. In certain regions covering thousands of square miles in the warmer parts of the world everyone is infected with malaria from early infancy until he dies. The deaths from malaria outnumber those of any war ever fought. Malaria bars the colonization of vast areas of the most fertile land in the world. It is figured that malaria is accountable for about 2,000,000 deaths each year in India alone, and that 100,000,000 there are afflicted with it. Yet we know the organisms responsible for the disease and can easily recognize them, we have a detailed knowledge of their method of transmission and have devised effective methods of control, thoroughly proved at Panama and in Italy. It is merely a question, then, of using the weapons we have at hand.

At the same time, many of the problems of malaria remain unsolved. We can check it, control it, but we cannot eradicate it. Not yet. But our scientists are indefatigable and unfeatable. Much of the investigation now is carried on with canaries as the subjects of experimentation, and the gratifying results lead Dr Hegner to burst into song in a Gilbertian manner as follows:

The birdies that sing in the spring, tra la!  
Have something to do with the case  
We prickle them under the wings Tra la!  
And pepper their blood with such things Tra la!  
That fever and chills thrive apace  
Oh! Aren't we all red in the face,  
And then little birdie gives us a hot clue  
That leads to good health for both me and for you  
Tra la! sings the birdie,  
Good-bye to your chills,  
The ague has left you at last  
Tra la! sings the birdie,  
Good-bye to dull care,  
Quinine and fever are past

W S W

### EXAMINATIONS, AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The next written examination and review of case histories (Part I) for Group B candidates will be held in various cities of the United States and Canada on Saturday, January 6, 1940, at 2:00 P.M. *The Board wishes to announce that it will hold only one Group B, Part I examination this year.* Candidates who successfully complete the Part I examinations proceed automatically to the Part II examinations held in June, 1940.

Applications for admission to Group B, Part I examinations must be on file in the secretary's office not later than October 4, 1939.

The general oral and pathological examinations (Part II) for all candidates (Groups A and B) will be conducted by the entire Board, meeting

in Atlantic City, N. J., on June 8, 9, 10, and 11, 1940, immediately prior to the annual meeting of the American Medical Association to be held in New York City from June 10 to 14, inclusive.

Applications for admission to Group A, Part II examinations must be on file in the secretary's office not later than March 15, 1940.

After January 1, 1942, there will be only one classification of candidates, and all will be required to take the Part I examinations (written paper and case records) and the Part II examinations (pathological and oral).

For further information and application blanks, address Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh (6), Pennsylvania.

# Books

Books for review should be sent to the Book Review Department at 1313 Bedford Avenue Brooklyn N. Y. Acknowledgment of receipt will be made in these columns and deemed sufficient notification. Selection for review will be based on merit and the interest to our readers

## RECEIVED

**Priests of Lucina. The Story of Obstetrics** By Palmer Findley M.D. Octavo of 421 pages illustrated Boston, Little, Brown and Co 1939 Cloth, \$5

**Cardiovascular Disease in General Practice** By Terence East M.A. Octavo of 206 pages illustrated Philadelphia, P Blakiston's Son & Co 1939 Cloth \$3.50

**Clinical Bacteriology** By F. A. Knott M.D. Octavo of 426 pages illustrated Philadelphia, P Blakiston's Son & Co 1939 Cloth \$4.50

**Surgical Anatomy** By C. Latimer Callander M.D. Second edition, entirely reset. Quarto of 858 pages illustrated Philadelphia W. B. Saunders Co 1939 Cloth, \$10

**Anemia in Practice Pernicious Anemia.** By William P. Murphy, M.D. Octavo of 344 pages illustrated Philadelphia W. B. Saunders Co 1939 Cloth \$5

**Pulmonary Tuberculosis, A Synopsis.** By Jacob Segal M.D. Octavo of 160 pages illustrated. New York, Oxford University Press 1939 Cloth \$2.75

**Chemical Analysis for Medical Students. Qualitative and Volumetric** By R. E. Illingworth Ph.D. Duodecimo of 152 pages. Baltimore William Wood & Co 1938 Cloth \$1.50

**Biochemistry for Medical Students.** By William V. Thorpe M.A. Octavo of 467 pages illustrated Baltimore William Wood & Co 1938 Cloth \$4.50

**The New International Clinics. Original Contributions Clinics and Evaluated Reviews of Current Advances in the Medical Arts** Edited by George M. Piersol M.D. Volume I New Series Two Octavo of 312 pages illustrated Philadelphia, J. B. Lippincott Co 1939 Cloth \$3

**Population, Race and Eugenics.** By Morris Siegel M.D. Duodecimo of 206 pages Hamilton Ontario The Author 546 Barton Street E 1939 Cloth \$3

**A Treatise on The Surgical Technique of Otorhinolaryngology** By Georges Portmann. Translated by Pierre Viole, M.D. Quarto of 675 pages illustrated Baltimore William Wood & Co 1939 Cloth \$12.50

**Trial of Field and Gray** Edited by Winifred Duke Octavo of 302 pages illustrated London William Hodge & Co 86 Hatton Garden 1939 Cloth 10/6

**Our Sex Life. A Guide and Counsellor for Everyone.** By Fritz Kahn, M.D. Octavo of 459 pages illustrated. New York Alfred A. Knopf 1939 Cloth \$0

## REVIEWED

**Practical Microbiology and Public Health. For Students of Medicine, Public Health, and General Bacteriology** By William B. Sharp M.D. Octavo of 492 pages, illustrated. St. Louis, The C. V. Mosby Company 1938 Cloth \$4.50

This handbook is designed to help the student of microbiology and public health in the organization, interpretation, and systematic recording of data observed by him in the laboratory and field. Tables distribute the exercises into appropriate working periods. Experiments are those that usage has tended to standardize. The book is divided into eight parts including clinical bacteriology, immunity, animal parasites, public health laboratory field trips, health office problems and surveys. In the sections on bacteriology are included general bacteriologic work, bacteria found in dust, milk, and food, bacteriophage, intestinal flora, water pollution and gas gangrene. Public health problems are well

treated. The book is profusely illustrated and should be very helpful to those interested in the above problems.

EDWARD H. NIDISH

**Manual of Public Health Hygiene** By J. R. Currie, M.A. Octavo of 324 pages illustrated Baltimore William Wood & Company 1938 Cloth \$5

This is a book primarily intended for medical students but the author recommends it also for medical graduates and licentiates.

It is a British publication and consequently the examples cited in support of the various phases of community health work are based upon English and Scotch experience. To this degree it may be of value, especially to public health workers for comparison purposes. The general order of text presentation is similar to most of the books on this subject.

A. E. SHIPLEY

**A Handbook of Roentgen and Radium Therapy.** By A J Delario, M D Quarto of 362 pages, illustrated Philadelphia, F A Davis Company, 1938 Cloth, \$8

The book is divided into three parts The first section deals with the physical and biologic properties of the roentgen and radium rays, and discusses in a general way the principles and technic for the treatment of a list of diseases that are favorably influenced by irradiation The second section consists of figures, tables, graphs, and charts, which the author has mainly culled from the literature to present theoretic and practical information on the physics and dosage of radiation therapy In the third part the end results obtained by various investigators and clinics in the treatment of neoplasms in different parts of the body by surgery or irradiation or by a combination of both are compared

If one seeks detailed methods of treating cancer by irradiation with illustrations of clinical cases and procedures he will be disappointed, because this volume fails to present any such information No mention is made of the author's methods, procedures, or clinical material, and there is no real attempt to evaluate the work of others from the writer's experience

The material presented represents the author's notes gathered from his perusal of the literature, and, as such, it is admirably reproduced The tables, charts, and statistical review of published material collected from many hospitals on every phase of cancer are well arranged, clearly presented, and serve well as a ready reference

As the author states in his preface, he lays no claim to originality His purpose has been accomplished if the material which he has gathered from excellent books and articles has been arranged in a way as to be useful to others The book should accomplish this aim

SAMUEL GEORGE SCHENCK

**Physical Diagnosis** By Richard C Cabot, M D, and F Dennette Adams, M D Twelfth edition. Octavo of 846 pages, illustrated Baltimore, William Wood & Company, 1938 Cloth, \$5

The first edition was published in 1900 and many men still in active practice used this as their first guide to the subject That was a "one man" book like Osler's *Practice* In the first edition, the author states, "All that I have described I know by prolonged use"

In this edition, the idea that a book of this type should represent the writer's personal experience and nothing else is abandoned in keeping with the modern belief that no one's experience is sufficient to include all that should be presented on the subject of physical diagnosis Many men, mainly of the staff of the Massachusetts General Hospital, have helped with their specialized knowledge in various fields Even with this change of policy, rewriting, new illustrations, and great enlargement, the book has still a familiar look for those who relied so much upon the earlier editions There is probably no better book on the subject for a medical student to start with and stick to for many years

WILLIAM E MCCOLLOM

**Control of Conception.** By Robert L Dickinson, M D Second edition Octavo of 390 pages, illustrated Baltimore, The Williams & Wilkins Company, 1938 Cloth, \$3 50

In his inimitable way the author has presented his subject completely and interestingly His evaluation and crystallization of the present-day knowledge of the subject is distinctive throughout for its factual basis

As stated by him, "the manual has two objects first, the submission of contraceptive methods to the obstetrician, the gynecologist and the practitioner, second, stimulation of research." That he has accomplished his first objective will be evident to all who will read this volume. The enthusiasm with which he writes is assurance that the latter objective will be realized

The orderliness of the subject's presentation, the detail of description, and Dr Dickinson's characteristic illustrations invite all who are concerned with the subject to enjoy this book's contents

WILLIAM C MEAGHER

**The Fundamentals of Internal Medicine** By Wallace M Yater, M D Quarto of 1021 pages, illustrated New York, D Appleton-Century Company, 1938 Cloth, \$9

Yater's *Fundamentals of Internal Medicine* may be recommended unhesitatingly as an excellent synopsis of internal medicine, the best probably that is available in this language at least All of the main divisions of this wide field are clearly, accurately, even entertainingly outlined Sections on treatment are sketchy but all others are adequate, and most of the illustrations are superb The chapter on endocrinology is especially good

However, the usefulness of such a book as a text is limited Its merits are those of the synopsis, and students should be discouraged from using it except in conjunction with a standard textbook of medicine The outlines must be filled in, even by the beginner, with fuller accounts of the diseases covered There are chapters on the specialties that might have been more useful if their contents had been restricted to those conditions that have some relationship to internal medicine instead of including material that properly belongs to other specialties

There are very few exceptions that can be taken to the method of organization and presentation The author is sometimes dogmatic, as one must necessarily be when writing a synopsis Many cardiologists would take exception to the statement that there is "only one kind of heart failure, that called congestive failure." Surely cardiac arrest in heart block with syncope, for example, one variety of heart failure that is not congestive.

In summary then, this is a highly recommended outline of internal medicine which cannot replace a textbook If the volume were shortened by omission of the specialty chapters and the illustrations, satisfactory though the latter are, the price of the book might be reduced and its usefulness enhanced

MILTON PLOTZ

**Functional Activities of the Pancreas and Liver** A Study of objective methods for the estimation of function levels in health and disease. By Charles W. McClure, M.D. Octavo of 318 pages, illustrated. New York, Medical Authors Publishing Company 1937. Cloth, \$3.50.

This monograph presents the results of many years of investigation concerning the chemistry of the duodenal contents. In addition to standardizing laboratory method in this field some revolutionary conclusions are offered as related to the physiology of pancreatic secretion. The author and his associates have eliminated by their experiments all support of the HCl secretion mechanism in the external secretion of the pancreas. They also believe that concentration of enzymes in the digestive duodenal juice is not reduced in achylia. Thus the theory of a pancreatic achylia secondary to a gastric achylia must be rejected. The existence of cholecystokinins, as described by Ivy, is questioned in man.

A study of liver dysfunction by analysis of duodenal contents, and its treatment with good results by intraduodenal solutions of magnesium sulfate, substantiates some of the earlier work of B. B. V. Lyon and should lead to a wider therapeutic application.

The theory that liver functional disturbance is involved in the etiology of migraine is again advanced and good results from intraduodenal therapy are related.

Special chapters by Tage Christensen and the late Allan W. Rowe substantiate some of the conclusions of the author upon the subjects of achylia and disturbed liver function.

Owing to the mass of data and detail it is not a book that one can read consecutively. The points are painstakingly proved. Distinct contributions are made to the knowledge of the physiology of digestion. The section of the book devoted to methods and technical procedures should be valuable to the worker in this field.

HENRY F. KRAMER

**The Clinical Examination of the Nervous System.** By G. H. Monrad Krohn, M.D. Seventh edition. Duodecimo of 319 pages illustrated. New York: Paul B. Hoeber 1938. Cloth, \$3.

This volume has been recommended for years as a textbook to be used in the instruction of the second year class of the Department of Neurology of New York University. The firm intelligent appreciation by this group of students as a whole of the basic principle of a well-rounded, sound neurophysical examination is an ever-constant proof of the value of this book.

Simplicity is the rule, rendering the grasp of the newer points to the initiate fairly easy. Dr. Krohn takes a positive stand on how to properly elicit the essential tests. Emphasis is placed on a constant routine in the physical examination. Certainly the meticulous precision of a neural examination is exceeded by no other specialty, and it is only the careful, precise, well-trained examiner who will get most out of his examination.

To obtain correct responses requires a proper method of approach. It is only in the analysis of findings elicited properly that an exact interpretation can be gained. A student trained in the Krohn method cannot be the loser.

In this edition new illustrations dealing with ventriculography and encephalography have been introduced since these tests are of basic clinical importance.

New material includes a short description of angiography and a brief outline of the examination of unconscious patients. Numerous additions and alterations have been made—some chapters partly revised.

The book has reached a size of 310 pages, but is still of sufficient compactness to be carried in the coat pocket. One hundred and eleven illustrations are included.

The book is a command performance.

H. R. MERWARTH

**Biology for Pharmaceutical Students and Others.** By S. Mangham, M.A. and A. R. Hockley, B.Sc. Octavo of 618 pages illustrated. Baltimore, William Wood and Company 1938. Cloth, \$6.50.

This book as the author states is designed primarily to meet the requirements in biology of students preparing for the Preliminary Scientific Examinations of the Pharmaceutical Society of Great Britain. It has however an appeal to all classes of students, irrespective of those interested in pharmacy who desire to review the elementary principles of this subject. A large part of the book is devoted to the study of plants because this is of particular interest to the pharmacist. The animal body and its functions are then taken up but not as completely as that concerning plants. Leaving the large and complex Vertebrata, the phylum Protozoa is then considered with special attention to the Amoeba and Paramecium. After brief consideration of the earthworm and cockroach the subjects of embryology and evolution are presented in a limited way.

FREDERICK SCHROEDER

**Big Fleas Have Little Fleas or Who's Who Among the Protozoa.** By Robert Hegner. Quarto of 285 pages illustrated. Baltimore, Williams & Wilkins Co. 1938. Cloth, \$3.

From the title to the concluding epode there is witty progress through an edifying subject made amusing by prose, poetry and picture. The cartoons, clear line drawings and expeditionary photographs furnish much to enliven and enlighten the reader. And would that experts in otherologies had as facile a pen as Hegner wields in this propagandizing of protozoology. There has been given a thorough survey of protozoa, definite ideation of host-parasite relationship, and practical informative material all displayed by an artist who utilizes ambisextious as expertly as defaunate. With his sexy quips he seems to have missed only one opportunity: elucidation of the etiologic representative for Granuloma inguinale. Everyone should have this work for sheer enjoyment whether primarily interested in the subject or not.

IRVING M. DERBY

**And the Stutterer Talked** By A Herbert Kanter, M D, and A S Kohn, B A Duodecimo of 236 pages Boston, Bruce Humphries, Inc., 1938 Cloth, \$2

One approaches this book with a certain amount of equivocation as he reads on the jacket a statement "a new approach to the problem," and in another statement, "nothing would be a greater blessing than to have the true nature and cause of stuttering become a matter of common knowledge"

This book is written in the form of a biography. It tells the story of a stutterer, from early childhood through adulthood, whose entire life is apparently dominated and thwarted by his speech disorder. The biographic form of writing seems to the reviewer to be the only new approach to the problem" since the material itself presents nothing new. It simply reiterates and describes in simple language the personality problems and psychologic factors associated with stuttering. This conception of the importance of the emotional and personality factors in stuttering has been recognized and stressed by many writers on the subject.

As to the true nature and cause of stuttering, it still remains unknown, unless one accepts as scientific truth such general statements that the stutterer has an inherited nervous system predisposed to instability which has received a shock in early childhood.

The author can be given credit for presenting in a simple and effective manner the modern conception of stuttering. In addition to that he does expose the many charlatans and quacks who exist in this field.

However, the title of the book—*And The Stutterer Talked*—is, to say the least, somewhat misleading. The reader upon seeing the title would expect the principal character, Bill, after all his vicissitudes, finally to have acquired normal speech. But not so—one finds at the end of the book that Bill has succeeded in changing from the tonic to a clonic stutterer Eureka!

I W KARLIN

**Shock and Related Capillary Phenomena** By Virgil H Moon, M D Octavo of 442 pages, illustrated New York, Oxford University Press, 1938 Cloth, \$3 50

The phenomenon of shock, though of the gravest importance in medicine, has always proved a baffling problem to both internist and surgeon. Much work has been done in this subject, chiefly by physiologists and more recently by pathologists, and many theories have been proffered in explanation of the train of symptoms and signs that are associated with this phenomenon. Dr Virgil Moon has for a long time been actively interested in this problem, and has examined in detail the organs and tissues in cases of shock both in humans and in lower animals. In this present volume he presents a concise and lucid discussion of shock and related capillary phenomena, compressing into a small volume a brief discussion of the structure, distribution, and function of the capillaries and their relation to inflammation and shock. He later discusses the

various theories of shock and the evidences for them. There are also chapters on the pathology of shock, anaphylactic shock, the various conditions in which shock is a prominent picture, and on the mechanics of death in these conditions. In the final chapter he cites practical considerations in the prevention and treatment of shock.

It is a much-needed work, and will be of help to all physicians and surgeons in understanding some of the basic problems underlying the baffling and important phenomenon of shock.

DAVID M GRAYZEL

**Silicosis and Asbestosis** By various authors Edited by A J Lanza, M D Octavo of 439 pages, illustrated New York, Oxford University Press, 1938 Cloth, \$4.25

To those interested especially in pulmonary diseases and to the industrial physician, this is a most welcome and timely publication. It is authoritative, and covers the subject from every important angle, emphasizing especially the histologic and pathologic counterpart of the x-ray findings of nodulation and conglomerate shadows of simple silicosis and silicosis with infection.

It is the experimental work of Dr Leroy U Gardner, however, which clarifies this important subject in the chapter on "Experimental Pathology." With pure silica he reproduced in animals tissue changes identical with human silicosis, and proved that this increased the susceptibility to tuberculosis. This fundamental fact, universally accepted at present, raises other similarly vital questions that cannot be answered in the light of our present knowledge. What is the relationship of silicosis to a previous and to a superimposed infection? Does removal from exposure influence silicosis and its effect on a previous and superimposed infection? These and many other questions await the accumulation of scientific and factual data of research.

Both silicosis and asbestosis are industrial dust diseases and are compensable under the Workmen's Compensation Laws of the State of New York. For the public health worker in his efforts to make industrial life or occupations safer for the workers in dusty environments, this book contains a table of all industrial uses of silica.

PETER AMAZON

**Medicine in the Outpatient Department. An Introductory Handbook** By Winthrop Wetherbee, Jr, M D 16 mo of 111 pages New York, Paul B Hoeber, Inc, 1938 Cloth, \$1

This is a very handy pocket-sized volume for medical students about to start outpatient work. The introductory pages summarize the type of work which will be encountered and the manner in which the student should approach it. The rest of the book briefly reviews some valuable principles of diagnosis and therapy, and is replete with pithy dicta of great service to the beginner. The last section reviews the essentials of good history-taking and physical examination. This work can be warmly recommended.

ANDREW M BABEY

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## *Editorial*

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### A Wartime Lesson

The present European War furnishes still another example of the destructive effects of political control over medical practice. In Germany virtually the entire working class population is compulsorily insured. It was therefore an easy matter for the Nazi Government to bar Jewish and dissident "Aryan" physicians from practice by closing the *Krankenkassen* to them.

Naturally this produced a shortage of qualified medical men. To supply the deficiency the Ministry of Education shortened the medical course by nearly two years. Since even this drastic step did not suffice to relieve the shortage (for Nazi Germany is not a healthful place in which to live), the government then went so far as to license a special class of "healing practitioners" who are without regular medical training but who possess an "intuitive ability" to cure the sick.

Today, with the nation at war and military duties requiring the services of many practitioners, the shortage of qualified medical men in Germany is acute—so acute, in fact, that it is reported that some Jewish physicians are being permitted to resume practice. After seven years of Nazism, however, many of the best German physicians are now in exile, and a large number of those who have remained in the country are too demoralized, after years of enforced idleness and persecution, to render high quality service. Of the *Heilpraktikers*—who cure by "intuitive ability"—nothing need be said.

In the situation in Germany, though conditions there are admittedly extreme, there is a warning to every democratic country that thinks to increase the quantity of medical service by placing it under lay political control. The rise of medical standards in the present century and the phenomenal advance in preventive and therapeutic methods are due to the zeal and responsibility of the



medical profession. To curb that zeal by bureaucratic regulations and to devitalize that responsibility by political domination, is to invite a decadence of professional stamina and an insufficiency of skilled care.

### Symptoms Masked by Sulfanilamide

As we have repeatedly intimated, several years will have elapsed before the story of sulfanilamide therapy can be written definitively. Claims originally made have been withdrawn or modified. Its therapeutic scope has been enlarged from the limited one first proposed. Toxic manifestations are more thoroughly understood and more readily controlled. Finally, certain phases of the use of this chemical have already reached the stage of preciseness.

No branch of medicine has had more occasion to estimate the value of this drug than otorhinolaryngology, wherein the vast majority of infections are caused by the *Streptococcus hemolyticus*. Had sulfanilamide here done nothing more than it did when it changed the prognostic "sign" of otitic streptococcic meningitis from *fatal* to *favorable*, its worth would have been established without question. But this ability to cope with complications of lethal import has impressed many with the possibility of limiting still further infections of the upper respiratory tract which of themselves are self-limiting in nature. It has resulted, therefore, in the indiscriminate use of sulfanilamide for all minor infections of the ear, nose, and throat. This factor has led to a further observation concerning sulfanilamide which is extremely important clinically.

Maybaum, Snyder, and Coleman<sup>1</sup> have noted that its use "masks" symptoms in acute purulent otitis media, distorts the recognition of known symptoms and signs in otitic lesions, and gives a false sense of security in that the pathologic process in the temporal bone may progress without exhibiting the evidence that ordinarily attends such an advance. Periods of quiescence, which persist until either the drug is withdrawn because of the false impression gained by the improvement or until an intracranial involvement manifests itself, are evident in their case reports. There are two impressions to be gained from their study. The first—that sulfanilamide changes the clinical picture of the otitic infections commonly encountered by the general practitioner and that consequently, when he uses the drug for these conditions, he may be endangering his patient by unduly prolonging the period of observation, and second—that the usual indications for surgery on the temporal bone are obscured by sulfanilamide and therefore added caution is essential.

<sup>1</sup> Maybaum, J. L., Snyder, E. R. and Coleman, L. L. J. A.M.A. 112 2589 (June 24) 1939

On the other hand, this "masking," or analgesic effect of sulfanilamide, appears to be of value in ophthalmologic practice, according to Bailey and Soskin.<sup>1</sup> They found that in nine patients suffering from severe corneal ulcers due to burns or trauma, ocular pain and headache were completely relieved and sleep was possible throughout the night without the use of an opiate. This analgesic effect was evident while the ulcers were in their florid state and while the sensitive corneal fibrils were still fully exposed.

We know that similar clinical manifestations have been noted in other fields. Perhaps the spectacular results that have been achieved by this drug have overshadowed this important phase of sulfanilamide, hitherto spoken of only in the coatrooms. *More such articles*

### An Irrational Yardstick

When laymen attempt to fix the value of medical service, odd things happen. In the lay eye—and particularly the lay politician's—every laborer is worthy of his hire except the doctor.

In estimating the relative value of various types of work, it seems obvious that certain pertinent factors should enter into the determination. How important is the work? Does it require a long, expensive period of preparation? What are the risks involved? Does it demand special skill or impose heavy responsibilities?

Judged by any one of these criteria, medical service should command a high wage. The medical course, with its subsequent period of hospital internship, is longer and costlier than the training for any other occupation. The physician's life is full of risks and weighted with responsibilities. The service he renders is indispensable and demands the utmost judgment and skill.

Nevertheless, the Philadelphia County Assistance Board considers at least six trades deserving of greater financial rewards than medical practice. According to figures recently published in the *J.A.M.A.*, the physician's hourly compensation of \$1.51 is bettered by \$1.79 an hour for a bricklayers' foreman, \$1.65 for iron and steel workers, \$1.62 for ordinary bricklayers, \$1.60 for marble setters and polishers, and \$1.55 for plasterers. Yet none of these trades compares with medical practice in the skill and preparation required for them, the risks and responsibilities they entail, or in the benefits they confer.

The schedule described above is a warning to physicians not to let control of their profession slip into the hands of lay bureaucrats.

<sup>1</sup> Bailey J. H. and Soskin B.: *Arch. Ophth.* 22: 80 (July) 1939.

The average medical income in this country is too low as it is. In fact, advocates of compulsory health insurance frequently call attention to this in an attempt to win over the rank and file of the profession to their side. Actions speak louder than words, however. As far as physicians are concerned, the wage scale adopted by the Philadelphia County Assistance Board is an eloquent argument for rejecting lay political control of medical care.

### Pancreatic Function

The physiologic study of pancreatic activity has, in the main, been confined to the experimental laboratory. The use of the so-called clinical enzyme tests has been shown to be of doubtful value because of the variable and inconstant results obtained. Since the isolation of secretin in a pure state from the small intestine of the dog,<sup>1</sup> and its standardization pharmacologically, a series of important clinical observations of pancreatic function in health and disease has been made in the human.

The most recent report is that of Diamond, Siegel, Gall, and Karlen.<sup>2</sup> With the aid of a specially constructed gastroduodenal tube, they are able to obtain an uncontaminated pancreatic juice without interference of the gastric hydrochloric acid stimulus. Secretin, which has a specific effect upon the external secretory cells of the pancreas, when injected intravenously, increases the volume of secretion, the amount of bicarbonate, and the output of all the enzymes. These normal phenomena, Diamond *et al* have shown to be altered in pathologic states such as mechanical obstruction of the pancreatic duct, steatorrhea, and chronic intermittent diarrhea.

This alteration consists of an "instability in the response of the pancreatic cell with regard to enzyme output characterized by dissociation of the enzymes affecting lipase and trypsin and least the diastase." Since there is no uniformity observed, all the enzymes must be studied simultaneously in the performance of this test.

It is suggested that secretin may have therapeutic value in that several cholecystectomized patients with persistent symptoms reported marked clinical improvement following its use. Thus, a new clinical approach to the study of pancreatic disease is made available. As observations accumulate, more exact diagnoses may be expected, and more "idiopathic" diseases explained on a real, etiologic basis.

<sup>1</sup> Wilander, O., and Agnew, G. *Biochem. Ztschr.* 250: 489 (1932).

<sup>2</sup> Diamond, J. S., Siegel, S. A., Gall, M. B., and Karlen, S. *Am. J. Digest. Dis. & Nutrition* 6: 366 (Aug.) 1939.

**Institute on Nutrition and Diet**  
Sponsored by the  
**Medical Society of the State of New York**  
Headquarters Syracuse University  
College of Medicine Auditorium

**PROGRAM**

(Sessions start at 9 00 A.M.)

**WEDNESDAY, OCTOBER 18, 1939**

**GENERAL CONSIDERATION OF DIET**

Dr A. F. R. Andresen, Clinical Professor of Medicine Long Island College of Medicine Brooklyn N Y

**DIET IN CARDIAC DISEASES AND ARTHRITIS**

Dr Russell L. Cecil, Professor of Clinical Medicine, Cornell University Medical School, New York City

**DIET IN RELATION TO ALLERGY**

Dr Robert A. Cooke, Assistant Professor of Clinical Medicine Cornell University Medical School New York City

**WEDNESDAY, OCTOBER 25, 1939**

**DIET IN PREGNANCY AND LACTATION**

Dr Edward C. Hughes, Professor of Obstetrics Syracuse University College of Medicine Syracuse, N Y

**DIET IN INFANCY AND CHILDHOOD**

Dr Henry L. K. Shaw, Clinical Professor of Pediatrics Albany Medical College, Albany N Y

**DIET AND DEFICIENCY DISEASE**

Dr Thomas T. Mackle, Attending Physician, Roosevelt Hospital New York City

**WEDNESDAY, NOVEMBER 1, 1939**

**DIET IN DIABETES MELLITUS**

Dr Charles B. F. Gibbs, Assistant Professor of Medicine, University of Rochester School of Medicine Rochester N Y

**DIET IN OBESITY AND UNDER NUTRITION**

Dr William A. Groat, Professor of Clinical Pathology Syracuse University College of Medicine Syracuse N Y

**DIET IN DISEASES OF THE GASTRO-INTESTINAL TRACT**

Dr A. H. Aaron, Associate Professor of Medicine, University of Buffalo School of Medicine, Buffalo N Y

**WEDNESDAY, NOVEMBER 8, 1939**

**DIET IN RENAL DISEASES**

Dr William S. McCann, Professor of Medicine University of Rochester School of Medicine, Rochester N Y

**DIET IN RELATION TO SURGERY**

Dr Samuel Standard, Assistant Clinical Professor of Surgery New York University College of Medicine, New York City

**THE ENERGY FACTOR IN NUTRITION**

Dr John R. Murlin, Professor of Vital Economics University of Rochester School of Medicine Rochester, N Y

*The program of lectures by dietitians will be announced in a later issue*

Ample opportunity will be provided at all the sessions for submitting questions to be answered by the speakers. Practical demonstrations will be given and outlines of each lecture will be distributed. The course will cover the entire field of medicine. Applications should be made as soon as possible as it will be necessary to limit the numbers. The fee for one full day session is \$3.00, for the whole course of four, \$10.00. Preference for admission will be given to those wishing the full course. Application, together with registration fee, should be sent to

DR. THOMAS P. FARMER, *Chairman*  
Council Committee on Public Health and Education  
Medical Society of the State of New York  
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## Current Comment

"Does any sane person think that greater progress can be made in fighting cancer by political doctors, merely concerned about holding political jobs, than by the free scientists of the medical profession backed by the liberal endowments of civic-minded philanthropists? . . . It is true that in many cases, the expense of medical care and hospitalization is beyond the householder's means. Yet there is no country in the world where so much free service is available. Every city and every county make provisions for the aid of those unable to pay. Does anyone believe that a 'state doctor' will have any more personal or professional interest in a patient than a doctor in private medical practice? State medicine is social quackery at its worst. And its most pathetic victims would be those unfortunates whom the sophomoric theorists like to picture as its beneficiaries."—From a recent article in the *Los Angeles Times*, written by W. Kee Maxwell, former publisher of the *Fullerton News-Tribune*.

"The family doctor is a cornerstone of American life. To millions he is a priest rather than a physician. The day of high-pressure specialists and high-sounding sanatoria has not changed him. The burden of calls upon the poor and needy has not broken him. The allure of fame and fortune in unknown trails of research has not dazzled him. The darkness of depression and debt has not dismayed him. Rich or poor, in costly hospitals or free clinics, in lofty apartments or third floors back, the American doctor has carried on. The nation is proud of his record.

"No wonder, therefore, that every right-thinking doctor is aroused to preserve his profession. If every patient and friend of every doctor wheel into action, the most powerful lobby in history will be created to fight political medicine.

Doctors themselves must drop professional shrouds and act as citizens. The question of professional ethics is not in-

volved when one's profession is at stake. The dangerous shadow of totalitarianism in the professions affects every lawyer, teacher, minister, and engineer, as well as every doctor."—From an article by Charles Morris Mills in the June 11 *New York Herald-Tribune*, called to our attention in the *Bulletin* of the Passaic County (N J) Medical Society.

. . .

"The degree to which this insincere and despicable libel upon the American doctor has succeeded in destroying the confidence of the public in the fidelity and integrity of its medical servants, is the measure of a signal disservice rendered the American people by their government.

"Now that the fraud, guile, and legalistic quackery of this assault has been completely revealed by the ignominy of its abortion—we believe the American press will share the resentment of the medical profession and its friends at the shabby deception that has been practiced upon them. And although corrections never receive as prominent a notice as the original error—we hope the press will give this vindication the attention it deserves.

"The indictment of the Medical Profession has been converted into a conviction of its accuser, the Federal Government—a conviction that only an honorable and forthright deportment in future can discharge."—The editors of the *Westchester Medical Bulletin* for August discuss "A Victory for the Profession and for the People."

. . .

"Perhaps we shouldn't refer to a man as a chiseler if he accepted the benefits made possible through organized medicine yet refused definitely to identify himself with it. Still, wouldn't it be a decided understatement to merely say that such an individual was willing to go along for a free ride?"—Conjecture in the *Bulletin* of the *Toledo Academy of Medicine* of recent date.

# THE ROLE OF POSTURE IN CHRONIC ARTHRITIS

HENRI H. JORDAN, M.D., New York City

IN SELECTING "The Role of Posture in Chronic Arthritis" as my topic for presentation before the Session on Physical Therapy, I have been guided by the desire to contribute to the general discussion a subject of equal interest to the physiotherapist and the orthopedic surgeon. I intend to deal with some modern conceptions of body mechanics and with a few recent types of orthopedic appliances that have a definite place in the treatment of this chronic disease.

The role of posture in chronic arthritis has long been recognized, and the immense literature hardly ever fails to mention its influence according to the author's ideas on the etiology and treatment of this disease. It is not within the scope of this paper to dive into the history of the subject under discussion or even to cite the outstanding contributions from the literature. However, with an eye to orthopedic tradition, I should like to pay homage to the author of the first extremely popular book on orthopedics, Nicholas Andry, of Paris. In his *L'Orthopédie ou L'Art de Prévenir et Corriger dans les Enfants, les Différents du Corps*, which appeared in Paris in 1741, he deals with the influence of posture on the entire body and with training in body mechanics. One of the etchings in his book has justly been considered a symbol of orthopedics.

Jumping almost two centuries to our days, we find the spirit of Andry reborn in J. B. Goldthwait, who has developed Andry's ideas in the light of modern science and has emphasized the role of posture for the prevention and treatment of chronic arthritis. Posture or body mechanics plays a very important part in the production of arthritis, and also in its treatment.<sup>1</sup>

Classification of chronic arthritis re-

mains a problem. The desire to find a valid terminology for the arthritides and arthroses is so strong that only too often a discussion of vitally interesting facts ends in a fight about nomenclature. Although classification is important for the understanding among the workers in this extensive field and also for simplifying and standardizing the treatment of different types of arthritis, lack of sufficient knowledge as to the etiology makes rational classification as yet impossible. We should, therefore, refrain from wasting too much energy on premature terminology. Fortunately classification is of minor importance for the discussion of the role of posture in chronic arthritis.

From the viewpoint of body mechanics, we are dealing in atrophic as well as in hypertrophic arthritis, regardless of its etiology, with an abnormal condition, an inferiority or insufficiency of the framework of the body. One, or several, or all of the skeleton's most vital elements, the joints, may be the site of the original lesion or of secondary changes. Such is the interrelation of the structural elements of the body machine that loss of function of even one single link will affect the entire chain (as will be shown later) and seriously interfere with the equilibrium between the working capacity of the organic entity and the demands made upon it. This equilibrium essential for the well being and efficiency of the individual, may be disturbed by abnormal demands made upon a normal body—extrinsic causes, or by pathologic weakness, or insufficiency of the organ—intrinsic factors. Chronic arthritis is one of the latter, and of the greatest practical importance.

The causative relation is twofold between chronic arthritis and posture.

Deformity and loss of function of diseased joints disturb the statics and dynamics of the entire body machine or at least of some of its sections, and thus lead to defective posture. On the other hand, poor body mechanics, e.g., those due to constitutional inferiority of soft tissue structures, or localized muscular defects through infantile paralysis, throw abnormal demands upon the articular units of the framework, thus acting as an extrinsic factor (as far as the joints are concerned) and playing a role in the development of chronic arthritis. In any event, correction of posture is necessary in order to achieve the prophylactic or therapeutic purpose.

One cannot discuss the analysis of the elements, and consequently the treatment of faulty posture, without some definite idea about posture in general and the standard for "normal" posture in a given individual. A wealth of literature on this subject, anatomic, physiologic, and therapeutic, is at our disposal, and all workers interested in the treatment of postural defects are doubtless familiar with the general principles. A few of the more important facts, however, deserve a brief explanation. As a rule, the word "posture" is used in describing man's upright position or erect carriage, and therefore studies of normal and pathologic conditions are frequently limited to standing and walking. The mechanics of posture are, however, of almost equal importance in the positions of sitting and lying down, as long as patients with chronic arthritis must spend so much time in bed or in a wheel chair.

What is the normal upright posture? As Stenmdler<sup>2</sup> has pointed out, it is better to determine normalcy of posture from physiologic and physical points of view than to give it a purely anatomic definition. He calls a standard for normal posture one which contains, in addition to the individual morphologic description, the particular relationship to gravitational stresses arising out of the individual anatomic build within certain accepted limits. "To recognize posture as either normal or abnormal it is above all else

necessary to establish the relation of the line and the center of gravity to conventional points or landmarks of the skeleton. The anatomical fluctuation within these fixed relations will give the limits of physiological posture."

For the practical purpose of recognizing and treating the elements of faulty posture in chronic arthritis it is, fortunately, sufficient to study the correct alignment of the spine and the lower extremities with regard to the center of gravity.

In the upright standing position the line of gravity intersects the spine at the cervicodorsal and dorsolumbar junctions and runs in front of the sacroiliac articulation. Moreover, the promontory lies in the same vertical plane with the shoulder and hip joints, the axes of the knee, and the ankle joints.

Furthermore, in a normal leg in the upright position, the plumb line representing the center axis of gravity of the extremity runs from the center of the hip joint through the center of the knee joint, the center of the ankle joint, and hits the ground in the mid-line of the os calcis. The axes of the knee joint and the ankle joint form a right angle with the plumb line.

Whenever the correct posture with regard to the plumb line is disturbed, the body tries to restore and maintain the proper balance with a possible minimum of muscular effort. For instance, increased dorsal kyphosis may be compensated for by increased lumbar lordosis, decreased pelvic inclination flattens the lumbar lordosis and, consequently, the dorsal kyphosis, in order to maintain the proper relation of the entire body to the line of gravity. A marked valgus position of the foot requires a reorientation of the entire extremity to the plumb line and may lead to a *genu valgum*.

Such "natural compensation" of static and dynamic faults depends chiefly on the function of the articulations. Destruction of joints in chronic arthritis and the development of contractures and deformities may render the problem of compensation for a malalignment of a section of the spine or an extremity ex-

tremely difficult. A most instructive example is found in Boehler's book on fractures<sup>7</sup> a compression fracture of one vertebral body at the dorsolumbar border, e.g., the first lumbar vertebra, has not been reduced. Consequently the vertebral body of lumbar one is now wedge-shaped with the base of the wedge dorsally, this leads to a marked localized dorsal kyphus or gibbus, affecting the posture of the entire spinal column. A younger individual with freely movable joints compensates for the deformity by hyperextension of the hip joints and the sections of the spine below and above the site of the lesion. He is able to restore the upright posture at the expense of abnormal strain to the compensating elements of the spine, chiefly the lumbosacral junction. This in turn causes pain and leads to secondary pathologic changes of the affected structures. If, however, in a patient with chronic arthritis the spine and the hip joints have lost their motility to such an extent that they cannot assume a position of hyperextension, this patient can retain the erect carriage only by flexing his knee joints, at the same time increasing the inclination of the pelvis.

Finally, if such compensatory action is completely lacking, the patient is not able to balance his body by adequate alignment to the center of gravity, he can stand and walk only by supporting the body with the aid of two canes.

Spine, pelvis, and lower extremities represent one functional unit, a kinetic chain of links. Any alteration in shape, position, and function of one of the links affects the entire chain. This phenomenon is readily understood when observing the static and dynamic structure of both legs and of the pelvis. Von Baeyer has coined the term "geschlossene Gliederkette," which means a closed or uninterrupted chain of links.<sup>8</sup> If a person stands on both feet, such a closed chain is formed, for example, by ground, left foot, left lower leg, left thigh, pelvis, right thigh, and back to the ground, through the corresponding links on the right side. The ground represents the final link in this

closed chain. The motion of the sole of the foot on the ground occurs in what may be considered as an additional joint and may, therefore, be termed "Aus-sengelenk," i.e., extrinsic joint. If in this closed chain, one knee joint, for example, is flexed from full extension to 100° flexion, the relative position of the other links in the chain immediately changes. Flexion of the left knee joint causes dorsiflexion of the left ankle joint, abduction of the left hip joint, and downward tilting of the left side of the pelvis. Likewise, a valgus position of the heel, abduction of the forefoot, and (in order to permit propulsion of the foot) external rotation of the entire leg influence the position of the pelvis, particularly its inclination, and subsequently the lumbar lordosis. This example shows that the position of the foot has a direct influence on more proximal sections of the skeleton through the closed chain. An understanding of the mechanism of the closed chain explains the fact that lower back pain is frequently due to deformity or malalignment solely of the feet, which leads to a secondary malposition of the pelvis.

Finally, I should like to mention the role of the abdominal muscles in posture as compared with the spinal muscles. In the past, the latter have received most of the attention in the treatment of postural deformities of the spine, while the abdominal muscles have been somewhat neglected. The role of the abdominal wall and of the diaphragm has been chiefly recognized with regard to the function of the thoracic viscera and the stimulation of the abdominal organs. A strong abdominal musculature is, however, of great significance for the statics and dynamics of the entire spine. Schanz in particular has emphasized the importance of the abdominal wall and of the "abdominal bag" in supporting the spine. Leo Mayer has stressed the influence of unilateral paralysis of the abdominal muscles (due to infantile paralysis) on the development of pelvic obliquity and its role as a causative factor in paralytic scoliosis. Apart from the direct



action of the abdominal muscles on the spinal column, there are two indirect results of an insufficient abdominal musculature. An individual with asthenic muscles is suspended in his ligaments, frequently poor in quality, they soon become overstretched, and the articular surfaces of the bones are subjected to abnormal pressure in a wrong position with regard to the axis of the joint. Incongruity of the articular surfaces results, which is generally recognized as one of the essential causes of hypertrophic arthritis. The lumbosacral junction and the sacroiliac joints are the first ones to suffer. Secondly, an atonic abdominal wall leads to increased pelvic inclination and lumbar lordosis. The center of gravity of the body is displaced ventrally, and the ligamentous structures of the pelvic junctions are taxed by an unfavorable weight distribution. Obesity, which not infrequently complicates flabbiness of the abdominal musculature, aggravates the entire situation and hastens deterioration of the bodily carriage.

The role of the abdominal muscles is readily observed in patients suffering from chronic arthritis of the spine, for instance in a case of spondylarthritis ankylopoetica. During an attack of severe pain we find a board-like rigidity of the abdomen. As soon as the pain is relieved by application of an effective spinal brace, which unweights and immobilizes the diseased spine, the abdomen again becomes soft and elastic.

In order to arrive at a rational treatment, one has to analyze each individual patient for postural defects and the role which these play in his disability or well-being. It is not sufficient to note the deviations of the alignment of the lower extremities and the spine from the center axis of gravity and to compare the resulting picture with the standard of normal posture, nor is it possible or even desirable to rearrange all the elements of the patient's skeleton in normal alignment. We have seen that in a healthy person the standard of normal posture varies with the anatomic build. This is much more so in a patient with

chronic arthritis, where the relationship of the structural elements of the body framework to the plumb line in the erect posture may considerably deviate from the norm in order to compensate for fixed deformities. In addition to the complete medical workup of the case and the general conception of the postural defect, it is essential to find the factors that are chiefly responsible for the patient's disability and that therefore require correction.

Assuming that all the cases under consideration are suffering from a more or less generalized chronic arthritis affecting the spine and the lower extremities, we may find that in one case the valgus position of the feet has caused, by way of the "closed chain," an increased pelvic inclination, an increased lumbar lordosis, arthritic changes in the lumbosacral and sacroiliac articulations, and, consequently, lower back pain. Realignment of the feet alone may be sufficient to relieve the pain. A case of chronic arthritis limited to the lumbodorsal section of the spine may be completely disabled for standing and walking by a flexion deformity of his hip joints or by lack of flexion in his knee joints. As full extension in the hip joints or even only some degree of flexion in the knee joints is restored, this patient would regain his capacity for standing and walking without the aid of crutches or a cane, there is no necessity for an attempt to influence the fixed deformity of the spine proper.

A third patient with a rigid spine showing marked hypertrophic changes in the x-ray may for years remain free from pain and be fully capable for work, then he is suddenly in severe pain and completely disabled due to the recent development of arthritis in his hip joints. These become fixed in the position of flexion and external rotation and thus have lost their capacity to compensate for the postural defect of the spine. If treatment directed toward the disease of the hip joints results in restoration of painless motion, the patient will be able to reassume what has been "his" normal posture.

Case No. 700-38  
♂ 64 yrs.

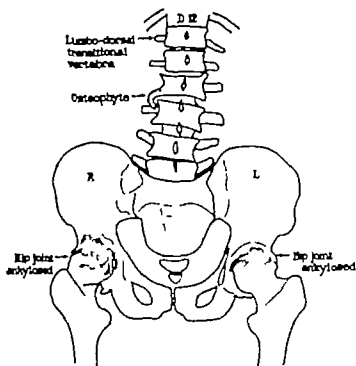


FIG 1

### Case Reports

Three case histories may illustrate the importance of careful analysis of defective posture in chronic arthritis with regard to the 'key factor' of the patient's disability.

**Case No. 700/38**—A 64-year-old baker (Fig 1) Had been perfectly well and working hard up to fifteen years ago. From then on he has suffered occasional attacks of lumbago that never last for more than three weeks. During the last four years his condition became gradually worse. One year ago he was still able to walk 4 to 5 blocks. He is now almost unable to walk. X rays of the spine were taken at regular intervals during the last ten years. They show marked changes of hypertrophic arthritis limited to the section of the first, second, and third lumbar vertebrae with an enormous osteophyte on the right side extending from the body of the second lumbar vertebra downward and overlapping the third lumbar vertebra. The small vertebral joints are normal. Patient was treated for years for chronic arthritis of the spine. He had worn a Knight spinal brace. He even had a neurologic examination, including a spinal tap. The result of all these treatments was completely negative. Clinical examination confirmed by typical x ray findings showed a bilateral *malum coxae senile* of the highest degree, both hip joints are almost ankylosed in a position of flexion adduction and external rotation. This patient has wasted approximately five years of treatment directed toward a

Case No. 758-38  
♀ 68 yrs.

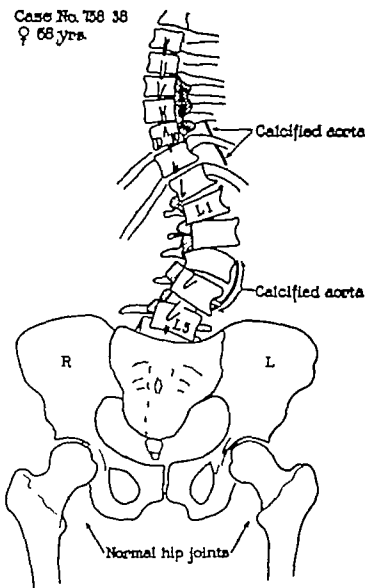


FIG 2

chronic arthritis of a section of the spine, which was not the cause of his disability. When careful analysis of his posture showed that chronic arthritis of the hip joints was the essential disease, it was too late for effective treatment.

**Case No. 758/38**—A 68-year-old woman (Fig 2) Has been suffering from severe scoliosis since early childhood. She received treatment by every possible means of conservative orthopedic surgery and physical therapy for at least fifty years. During the last two years she was treated for a serious heart ailment. Quite recently patient complained of pain in her back which became progressively worse. This pain was in the cardiologist's opinion, not related to the heart. The very intelligent and experienced patient observed that she had no pain in the back when lying down on a fairly hard mattress nor while sitting on a hard and straight chair she immediately gets pain on standing and can hardly walk. Examination showed a severe deformity of the spine, which influences not only the configuration of the thorax but also the entire posture. The most important element of the deformity is the complete lack of lumbar lordosis. Patient stands with the hip

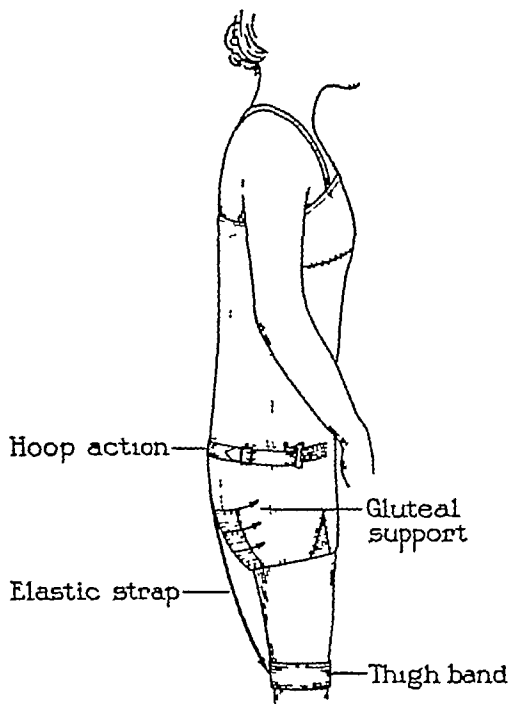


FIG 3

joints in marked external rotation and with the knees in flexion. The erector spinae muscles show no rigidity, but there is marked tenderness on pressure of the gluteal muscles with plenty of "lumps," so-called myogeloses. The abdomen is prominent and the abdominal wall flabby. X-rays show a severe fixed scoliosis with considerable narrowing of all intervertebral discs and the typical hypertrophic changes.

Analysis of the patient's posture: the entire spinal column has lost its normal curves in the sagittal plane, and thus its elasticity. The flabbiness of the abdominal wall has shifted the body's center of gravity ventrally. In order to balance her body in the erect posture, patient has to externally rotate both hip joints and flex her knee joints. At the same time the gluteal muscles bear the entire burden of balancing the trunk. They are now overworked, hence the myogeloses. With the spine completely rigid, it is only logical that this patient found no relief by any type of supporting spinal brace. Treatment must aim at (1) better weight distribution by supporting the abdominal wall, at the same time shifting the center of gravity backward (dorsally), (2) relieving the gluteal muscles from undue strain, and, if possible, supplementing their action. A specially designed abdominal belt with elastic gluteal straps to the thighs (Fig 3) solved the mechanical part of this problem satisfactorily, in addition to physical therapy for the relief of the muscular pain and weakness.

**Case No 788/39**—A 68-year-old woman (Fig 4). A small emaciated woman, bedridden for almost five years with a severe bladder condition. Was unable to stand and walk when she got up after her bladder ailment had been successfully treated. The physician in charge suggested that a chronic arthritis of the spine might cause pressure on nerve roots and thus be responsible for pain in the back and the hips and for the bladder trouble. Treatment had therefore been directed toward the spine, and a supporting spinal brace was considered. Twelve years ago patient sustained a fracture of the neck of the right femur. A pseudarthrosis with complete absorption of the neck of the femur and a shortening of

Case No. 788-39  
♀ 68 yrs.

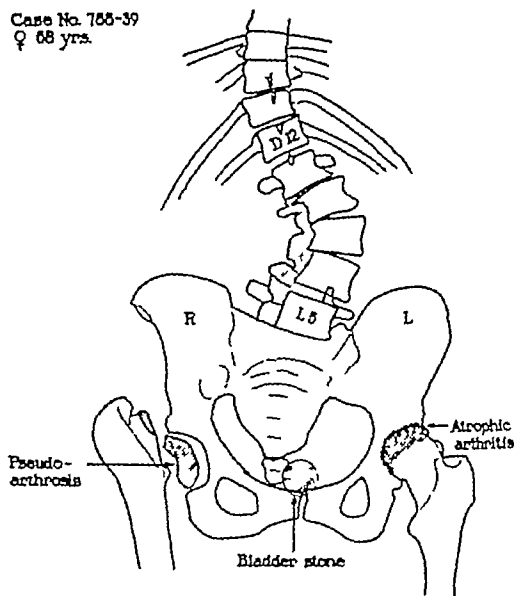


FIG 4

the leg by almost 3 inches resulted. As patient led a very quiet life, she was hardly inconvenienced by the painless pseudarthrosis of the right hip. Later on she developed some pain in her back on weightbearing only, but recently she experienced a new type of pain which caused more disability on standing and walking than ever before. This originated in her left hip, the one she used to call her "good" hip. Even when standing or taking a few steps in her room she requires the aid of a cane to stabilize her body in the erect posture. Examination shows a painless pseudarthrosis of the right hip with positive Trendelenburg and approximately 3-inch shortening. The back presents two pathologic features which are readily identified. One is the fixed deformity of a left lumbar, right dorsal scoliosis which, in spite of the degree of the deformity and patient's age, has left a considerable amount of mobility of the trunk, especially

as far as bending toward the right and left sides is concerned. The second feature of this back is merely a postural deformity. The lumbar spine deviates markedly toward the right side, i.e. opposite to the direction of the scoliosis. This lateral deviation is fixed by a board like rigidity of the lumbar erector spinae muscles. The left leg is almost completely rigid in flexion and marked external rotation. An attempt to move the left hip joint causes considerable pain, and the pelvis follows immediately the movements of the thigh. Roentgen examination confirms the clinical findings in every respect, showing arthritic changes of the highest degree in connection with the scoliosis, and most important, an advanced atrophic arthritis of the left hip joint. Analysis of the posture of this patient shows that neither the pseudarthrosis of the right hip nor the severe scoliosis with all the changes of hypertrophic arthritis had caused the disability. The patient was still able to balance her body in the upright posture for a limited amount of standing and walking. By doing so for approximately seven years, until she became bedridden an abnormal burden was placed on the originally normal left hip joint. The left leg had to make up for the loss of stability of the right one. This condition has led to a destruction of the left hip joint. Once the left hip had lost its function the body's last resource in the struggle for balance of the upright posture was gone, and the patient had to resort to the stabilizing aid of a cane. Treatment is first of all concerned with the acute condition of the left hip joint. It is only after function of the left hip joint has been restored, if at all possible or a substitute has been found for the loss of function that one should consider other measures for the improvement of the defective posture, with the aim of preventing a recurrence of the acute pathologic condition of the left hip.

THE scope of treatment of postural defects and faulty body mechanics in chronic arthritis is so well outlined by the analyses of these few typical case histories that it seems hardly advisable to blur the picture by a more general or more detailed discussion. When the analysis of the individual case is complete and a plan of treatment has been conceived, the physician is confronted with an important decision. He must ask himself where, when, and how this treatment can be carried out effectively, and, considering all the circumstances of the individual case, whether the patient will

benefit in the end. The plan of procedure may be entirely correct from the scientific point of view, and yet it may be impossible to carry it to a successful result because the patient is physically, mentally, or economically not in a position to cooperate to the necessary extent. For example, the expense of treatment of necessarily long duration may lower the patient's standard of living and thus reduce his vitality and resistance. There are, therefore, cases of chronic arthritis with partial disability, that will do better without any treatment. It is frequently sufficient to teach the patient to live within the limits of his capacity in order to keep him free from pain. On the other hand, corrective procedures, even when completely successful, in all probability will not enable such a patient to return to his former occupation, especially if this means heavy physical labor. In any event, as M. S. Henderson<sup>4</sup> has put it, the patient must be told how to live best with the disease."

Aware of these limitations, we feel, nevertheless, that the majority of patients suffering from chronic arthritis can be materially helped by rational treatment of faulty body mechanics. Physical therapy will improve the circulation and metabolism, build up an efficient musculature free from myositis and myogeloses, can eliminate postural defects, and restore normal posture. Thus I shall not attempt to discuss, nor the results by surgery and manipulation. Instead I should like to show a few examples of orthopedic appliances that have a definite place in the treatment of postural defects in chronic arthritis.

I have mentioned before that posture should not only be considered in the sense of the erect carriage of man while standing and walking. The patient's posture in bed is of equal importance. All our ambition to restore the arthritic patient's ability will be frustrated unless we succeed in making him comfortable during the long periods of rest and relaxation. While an adequate bed presents a most valuable prerequisite, it may not suffice to make a patient with

chronic arthritis of the spine comfortable in order to obtain the necessary relaxation of his rigid spinal and abdominal muscles. Here is the place for a well-made plaster of paris shell or, better still, a celluloid bed. This appliance is always indicated when the patient has to wear a supporting or correcting spinal brace during the time he is up and about. The important point that corrective forces should be active for twenty-four hours during each day cannot be overstressed. A celluloid night bed, light in weight, easy to clean and to transport, fulfills all the requirements for correct and correcting posture in the recumbent position. It makes the patient more or less independent of the quality of his bed, and it is therefore successfully used by patients who, in spite of their disease, have been kept at, or brought back to, an occupation that entails a great deal of traveling.

Prevention of deformities or the maintenance of correction obtained by surgery or manipulation is best accomplished by various types of night splints. In view of the long duration of the chronic disease, the more elaborate orthopedic appliances are preferable to plaster of paris splints.

In order to improve the upright posture, foot plates or foot braces, made of plaster of paris casts and worn in adequate shoes, are almost indispensable, and in a considerable number of cases the only appliance required. For the support of the knee joint the leather-strip knee brace, temporarily re-enforced by three steel whalebones in the back, is the most useful device.

Where elimination of weightbearing becomes necessary in order to promote healing of a severely diseased hip joint or to avoid abnormal demands on the sound leg in the case of an ununited fracture of the neck of the femur, one should not hesitate to apply an unweighting ischial seat brace at an early stage, instead of keeping the patient in bed. Two recent constructions, using Galland's ischial seat or von Baeyer's leather-strap seat, combine efficient un-

weighting with the least discomfort to the patient.

For the correct static alignment of the entire extremity, not only with regard to the center axis of gravity and the plumb line, but also to the element of torsion (which plays an important role for the painless function of the weightbearing joints in standing, as well as in the different phases of walking), an entirely new brace construction introduced by G. Hohmann offers new possibilities. The spiral-bar brace maintains a position between the generally inadequate single-bar leg brace and the larger, heavier, more complicated double-bar brace. The arrangement of the single bar as a spiral encircling the column of the extremity eliminates a section of the two rigidly connected longitudinal bars of a double-bar leg brace. It gains sufficient stability by the ingenious design of its spiral-like course. While permitting of considerable saving of labor and material, it has the advantage of being a very light brace, worn, as a rule, in an ordinary shoe, which fulfills the requirements for the wearing of a foot plate. A spiral-bar brace is less conspicuous than a double-bar leg brace, it is easily applied, and it facilitates later adjustments. This type of brace has proved extremely useful in the treatment of chronic arthritis. The same principle is used in the spiral-bar hip brace, which permits of a moderate amount of fixation, at the same time introducing the necessary forces to correct the three elements of the most common deformity: external rotation, adduction, and flexion. The spiral-bar hip brace is especially effective if combined with a hinged lower back brace, thereby controlling the important relation between spine, pelvis, and lower extremities.

For the treatment of the postural defects of the trunk proper, one must consider the abdominal belt, the hinged lower back brace, and the passive supporting spinal brace. Each of these appliances has its definite indications, their usefulness depends to a larger extent than is generally recognized upon correct fitting to the individual patient ac-

cording to the principles of scientific brace construction

An excellent appliance for the most severe deformities with marked shortening of the craniocaudal diameter of the thorax, which requires support but can no longer yield to correction, is the so-called "flower pot corset." Built as a leather-cork corset, it combines firm seat and good support with light weight and is therefore especially recommended for weak and sensitive patients with low vitality

### Conclusions

An understanding of normal body mechanics is essential for effective treatment of faulty posture in chronic arthritis. Posture is not limited to the erect carriage of man on standing and walking, but is equally important during rest and relaxation in bed

Spine and lower extremities form a functional unit. The principle of the "closed chain" and the role of the abdominal muscles deserve special consideration

Careful analysis of the elements of defective posture in each individual case

reveals which of a possible multitude of anatomic and functional defects requires treatment

The plan of procedure must consider all of the patient's circumstances, including the question of whether treatment is at all indicated or whether it is sufficient to teach the patient how to live best with the disease

Rational application of physical therapy and orthopedic surgery in the treatment of defective posture in chronic arthritis is supplemented to advantage by selected orthopedic appliances

Some less known constructions of proved merit, such as the celluloid bed, the leather-strip knee brace, the spiral type leg brace, and the leather-cork corset, are recommended

110 East 93rd Street

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### CRIME AND THE SCHOOL DOCTOR

Dr. Louis A. Van Kleeck was elected president of the New York State Association of School Physicians at its recent annual Saratoga Conference

Dr. Van Kleeck, who succeeds Dr. Michael Levitan, gave an address before the conference on "What I have Learned in Twenty Years as School Physician." Dr. Levitan, who also spoke at the conference, placed a high responsibility on the school health department. "Where else, he said, should destructive habits and maladjustments of children be remedied or their energies converted into helpful channels if not through the

advice and education of the school through its health personnel

Proper training plus school health supervision may strike at the very root of crime and be an important factor in its prevention.

The association went on record by unanimous vote in favor of sponsoring compulsory vaccination of every school child in the state

Officers elected were: Dr. Van Kleeck, president; Dr. William Ayling of Syracuse, vice-president; Dr. C. Adele Brown of Oswego, secretary; treasurer, Dr. Levitan of Rome; and Dr. Lewis W. Helzer, of Watertown, executive committee.

A throat specialist exhibited his laryngoscope to a nervous woman patient and remarked:

"You would be surprised to know how far down we can see with this instrument."

And then as he was about to place the laryngoscope in her throat, she apologized for having a hole in her stocking.—*Medical Record*

Doctor (to a drunkard) "Liquor is our worst enemy."

Drunkard "Haven't we been taught to love our enemies?"

Doctor "Yes, but not to swallow them!"—*Bulletin of the Buncombe County (N. C.) Medical Society*

# REDUCE HEAD INJURY MORTALITY

FRED W GEIB, M D , Rochester, New York

**E**ACH year, head injuries with associated brain trauma increase. It is estimated that over 150,000 skull and severe head injuries occur each year. More attention should be paid to the staggering mortality rate of these cases, which is about 25 per cent to 50 per cent in this country.<sup>1</sup>

FRACTURE SKULL CASES<sup>1</sup>

	Number	Death Rate
Mock's cases	200	18.2%
Collected cases	850	26%
Hospital records	1,350	40.5%

What can be done to reduce this high loss of life? Many special clinics report a 20 per cent mortality rate in fractured skulls and severe brain damage cases. In such clinics, what is the treatment that reduces the mortality rate from 40 per cent to 20 per cent? This tremendous reduction in mortality rate is a direct challenge to us to lower the death rate of these cases.

There is no unanimity of opinion concerning the treatment, and the special clinics vary in the use of hypertonic fluids, dehydration, and lumbar puncture. They do, however, follow rigidly several cardinal procedures which undoubtedly account for their lower mortality rate. These points are the following:

1. Treat the patient for his shock and do nothing that may increase it.
2. Check his associated injuries, and care for them in proportion to their immediate seriousness.
3. Never lumbar puncture a patient in shock.
4. Do not x-ray his skull immediately.
5. Operate at the optimal time.

The care of the patient at the scene of

the accident is practically out of our control. The laity become excited, and without any knowledge of his condition, literally drag the patient out of the wreck. In their misguided efforts to help, they only subject the patient to further shock and trauma. Very often a patient is jackknifed into a car and whizzed at high speed to a hospital emergency ward. He may be taken ten to twenty miles in such a ride. It is often a ride of death. Any patient who is unconscious, or who has suffered severe injury, should be handled most gently. He should be wrapped in all available clothing and placed flat on his back. If he is critically shocked, and has to be driven more than five or ten minutes, it would be well to take him to the nearest house and treat him there until he is over the shock. "A live fractured skull in a farmhouse is better than a dead one in the hospital."

**Shock**—Almost every case of head injury suffers from shock. This is the most important of all treatment in the first few hours following the injury. The least possible moving of the patient is the most essential thing in this treatment. No attempt is made to wash him, to remove his clothes, to change soiled bed linens, or to do any other thing that will disturb or move him! His temperature is frequently subnormal at that time, and warm blankets with hot water bottles, or a heat cradle should be used. If the patient is vomiting or bleeding from the nose or mouth, he should be placed on his side supported by pillows to prevent aspiration of blood or vomitus.

**Examination**—Examination of the patient is limited to as little as is absolutely necessary to help preserve his life at the time, and to give the physician a working knowledge of the patient's condition on admission.

*Read at the Annual Meeting of the Medical Society of the State of New York,  
Syracuse, New York, April 26, 1939*

1 Head. Examine the patient for lacerations, contusions, depressions, ecchymoses about the eyes and behind the ears, and palpate for depressions and crepitus.

2 Neurologic. In the cranial nerve examination, look for pupillary changes, extraocular muscle palsies, and facial paralysis. Test the degree of consciousness, the reflexes, the Babinski reaction, the presence of clonus, the motor power and tone, and note urinary or rectal incontinence.

3 General. Examine for chest, abdominal, and other bone injuries, do a urine examination, particularly for blood and sugar. Be certain there is no spinal injury.

*Lacerations*—Scalp and other lacerations are taken care of as the condition of the patient improves. If the patient's condition is precarious, all one needs to do is to fasten a few clamps on the galea or subcutaneous tissues, throw them back over the edge of the wound, pack with a nonirritating antiseptic soaked gauze, and apply a pressure bandage. Do not worry if there is slight oozing of blood, but do not allow actual hemorrhage to persist. Above all, never do any sort of débridement or suturing procedure. Of course early closure is advisable, and when the patient is out of shock, you can shave his scalp and do what is necessary. Do not bury any sort of suture material in the scalp tissues, but just approximate the edges of the wound with as few sutures as possible. Drainage is never necessary unless the wound cannot be thoroughly débrided. It is surprising the few infections one sees, even if these wounds are not sutured for many hours. If there is bleeding from the external auditory canal, or the ear, the surrounding area is washed with an antiseptic, and a dry dressing is applied. Under no condition is a cotton plug inserted or any attempt made to clean out the canal. Such procedure enhances the chance of a meningitis.

*X ray*—We are not concerned with the fracture of the skull, but with the damage to the contents of the skull. There is not one indication to take an

TABLE I.—DEATHS

Time	Cases	Complications
One second to 4 hours	5	Ruptured heart
4 to 10 hours	2	Atelectasis with pericardial adhesions — continued shock
6 days	1	Chest crushed—pneumothorax pneumonia
10 days	1	Pneumococcus meningitis
17 days	1	Lobar pneumonia—multiple fractures
Total	10	

immediate x-ray of the skull. What are you going to do after you have it? It doesn't change the treatment one iota. The moving and the handling of the patient may shock him more, if it doesn't even rob him of the slim chance to survive. What about depressed fractures? The same rule applies here, and we will discuss it further under operations.

*Drugs*—Morphine, sedatives, and hypnotics are not used during the acute phases of the injury. They will mask the most important sign we have to observe—the degree of consciousness. Morphine also has a tendency to increase intracranial pressure.<sup>4</sup> Morphine may be needed to ease pain and so decrease shock in the cases that have other fractures. We have seen disastrous results following the use of adrenalin. Caffein hypodermically, or coffee by rectum may be used safely.

*Fluids*—No patient who is unconscious or drowsy is given fluids of any sort by mouth. It is so easy for the patient to aspirate such fluids. Frequently the larynx pry open the jaws of a patient and pour water or alcoholic stimulants into his mouth—then on down the trachea! Intravenous fluids are given if the shock does not respond to the other treatment measures, or if the patient is dehydrated, or suffering from the loss of blood. We find that blood transfusions in a number of these cases give far better results than physiologic saline or 5 per cent glucose solution. Cattell and Deltrich give a practical discussion of secondary shock with its treatment.<sup>5</sup>

*Head Shls*—Any injury to the head and face should be considered serious until proved otherwise. For this reason, any patient who has had such an injury



TABLE 2 —HEAD INJURY ADMISSIONS AT THE ROCHESTER GENERAL HOSPITAL FOR A TWENTY-SEVEN-MONTH PERIOD FROM JANUARY, 1937, TO APRIL 1939

	Cerebral Concussion	Severe Brain Damage with Negative X-ray or Negative Autopsy	Fracture Skull Compound with Negative X rays	Fracture Skull X-ray Positive	Fractures—Severe Brain Damages Negative Clinical Fractures	Total Cases
Cases	333	20	10	67	97	430
Deaths	0	1	0	9	10	10
Percentage deaths	0	5	0	13.4	10.3	
Operations skull	0	5	0	4	9	9
Operation death	0	0	0	0	0	0
Complications						
Laceration scalp	178	7	7	20		
Contusion single	118	6	6	25		
Contusion multiple	22	8	2	11		
Chest injury	11	*3	1	*5		
crushed				*1		
Atelectasis		*1				
Pleural effusion				*2		
Pneumothorax	1			*1		
Pneumonia lobar				*3		
Pulmonary edema				*1		
Back injury	12	1	2	2		
Concussion, spinal cord	1					
Fracture—1 bone	35	3	3	*5		
2 bones	7	*2	1	*4		
3 bones	17	3		*6		
General arteriosclerosis	40	*1		*2		
Heart rupture ventricle				*1		
Adhesive pericarditis		*1				
Loss of blood	2					
Meningitis pneumococcus				*1		
Subdural hematoma		3				
Subdural hydroma		1				
Skull depressions						
Alcohol	24		1	3		
Fatty liver				*1		
Fracture spine	6					

\* Autopsy findings

without any clinical evidence of cranio-cerebral injury should be given this type of head slip, if he is not admitted to the hospital. All patients discharged after observation in hospital are also given such a slip.

#### INSTRUCTIONS TO PERSONS SUFFERING FROM INJURY TO THE HEAD

Stay in bed for ———— days

Come back to this hospital at once, either day or night, if there is

- 1 Increasing Drowsiness
- 2 Vomiting
- 3 Slowing of Pulse
- 4 Continued Headache
- 5 Stiffness of Neck
- 6 Bleeding or Clear Fluid Dripping from the Ears or Nose
- 7 Weakness of Either Leg or Arm
- 8 Convulsions (Fits)

We try to give this head slip to a member of the family rather than to the patient himself. This piece of paper saves lives from latent hemorrhages and complications.

The following paragraph is the official order posted in the Emergency Hospital Ward

#### HEAD INJURIES

All patients who are seen in the Emergency or the O P D suffering from injuries to the head are to have a careful follow-up after discharge from the hospital. Before discharge, a special slip of instructions for cases of this type is to be given to a responsible member of the family (not to the patient himself). The instructions should be read and explained to this responsible person by the doctor who has seen the patient. If this is not possible, and no other physician is available, then the head nurse should do it.

In case the patient is under arrest, the officer who takes charge of the patient receives the head slip and the instructions. This record should be made on the patient's history—Head slip given to ——— brother, etc."

**Hospital Admission**—We make it a rule to admit to the hospital for twenty-four hour observation, any person with a head injury who has been unconscious, shocked, or confused following an accident, even though the general and special examinations are negative. Any person who has the odor of alcohol on his breath and who has head trauma, is admitted even if he has not had any of the above history or findings. Alcohol may mask, simulate, or accentuate the symptoms of craniocerebral trauma.

**Tetanus Antitoxin**—All laceration cases receive tetanus antitoxin. When there are no shock or head injury symptoms, the antitoxin is given immediately. If the patient has been in shock, or has been unconscious, tetanus antitoxin is not given for twenty four hours. If the condition of the patient is poor, and he is hovering between life and death for several days, we delay giving him the antitoxin during this time and may never give it. Practically all children have had horse serum injections, and many are sensitive to it. Never give a head injury tetanus antitoxin without doing a skin test. We have seen very severe reactions from horse serum that almost caused death in the too early administration of the antitoxin after shock and unconsciousness. Likewise, in several cases, the latent reactions in very closely compensating cases have proved almost fatal.

### Signs and Symptoms

What are the signs and symptoms we look for in observing a patient, in order to measure or evaluate his condition?

1 *Degree of consciousness* is the most important sign of all. Increasing drowsiness and coma are proof that nature is not taking care of intracranial pressure. A second lapse into coma after a free interval of consciousness suggests an intradural hemorrhage, but is not pathognomonic

of it. A steady return of consciousness is the best possible indicator that space compensation is proceeding satisfactorily.

2 *Restlessness* is often the forerunner of coma. It may be submerged by medication, which is comparable to the giving of morphine for undiagnosed intra abdominal pain.

3 *Loss of sphincter control* always indicates deepening coma. It is a valuable sign, because it often occurs when unconsciousness appears unchanged.

4 *The pulse, respiration, and temperature* are most important, and should be obtained at frequent intervals, at least every half hour. Blood pressure changes are of much less value, when low, it indicates the degree of shock, and when very high, it indicates serious arterial hemorrhage, which is a very bad sign. Warning of the danger period is given in the rapid changes of the rate and of the volume of the pulse. As long as intracranial pressure is being compensated for, the pulse is usually slow and full. Respirations usually follow the same course as that of the pulse. Cheyne-Stokes respirations usually appear after the compensation is broken, this is a very bad sign. Often the temperature curve is a more sensitive indicator of breaking compensation. A slow, steady, upward march of the temperature is a very bad sign. When the temperature goes above 101.6 F, one must be on the lookout for a break in compensation. The interpretation of these signs gives us an exact measurement of the patient's condition at any one time. We must treat the patient upon our interpretation of these findings together with the neurologic findings that are present.

### Neurologic Signs

Our neurologic signs give us localization of brain damage. This may, or may not, influence our handling of the case.

1 *Loss of motor power or weakness* is important on account of the diagnosis of an extradural hemorrhage. It may be the only clue we have that there has been a rupture of the middle meningeal artery.

The face center is usually involved first, then the arm, and finally the leg. A subdural hemorrhage may do the same, but one usually sees it at a later interval, and the leg center may be involved first.

2 *Sensory changes* are not significant in differentiating the progress and types of cerebral injury except to localize it to the affected hemisphere.

3 *Reflexes* are often increased, but may be diminished. The Babinski test is a very important one, and if bilateral, means a graver prognosis.

4 *Pupillary changes* were considered most important two decades ago. A dilated pupil may mean an injury on the same side of the brain, but this is not diagnostic of the patient's condition.

5 *Cranial nerve injury* is not diagnostic of the patient's condition.

### Means of Treatment

What means of actual treatment do we have at our disposal? There are lumbar puncture, hypertonic fluids, and operation.

1 *Lumbar Puncture*—This is the outstanding therapeutic agent that is subject to controversy. There is one thing that all are agreed upon, and that is *DO NOT LUMBAR PUNCTURE A PATIENT IN SHOCK OR IMMEDIATELY AFTERWARD*. I believe that a lumbar puncture done at this time causes death more often than it saves life. This one caution is undoubtedly another reason for the reduction of the mortality rate in the special clinics.

Mock presents a clear clinical picture for the indication of lumbar puncture.<sup>2</sup> You will note that only 30 per cent of the fractured skull cases fell in this group. The following paragraph is copied from his paper: "Thirty per cent of the cases fell in this group, which is known as the lumbar puncture group. It includes the more serious fracture skull cases, which, because of persistent coma, persistently slowed pulse and respiration, usually below 55 and 16, respectively, extreme restlessness, persistent severe headaches, a lowered diastolic pressure, frequently down to 48, and any other signs sugges-

tive of persistently increased intracranial pressure do not yield to the usual dehydration procedures. It requires the closest observation to detect the difference between the signs and symptoms due to cerebral edema and other causes of a milder form of increased intracranial pressure, and the signs and symptoms of a threatened medullary compression due to more severe cases of increased pressure. A lumbar puncture done early, before medullary compression has developed, is often spectacular in its results. Patients will frequently come out of a deep coma a few minutes later, and even converse with the doctor or nurse. In many of these cases the puncture is only required once, if the ordinary dehydration is persisted in. Cases which have developed deeper coma, rapid shallow respirations, with no grunt, or Cheyne-Stokes respiration, and a rapid bounding pulse, have definite signs of medullary compression. The lumbar puncture should have been performed before this stage was reached, and certainly must be performed now. It is in these cases that this therapeutic measure is life-saving, although many of these patients die in spite of this effort. The lumbar puncture must be repeated if the signs and symptoms, which first indicate its need, recur or persist. Many lives are lost by persisting in lumbar punctures when indications for operative treatment are staring one in the face."

Dandy presents the opposite opinion, and the following paragraph is copied from his paper.<sup>5</sup> "Why perform lumbar punctures on very ill patients with injuries of the brain? They say, to find out how much pressure is in the cranial chamber and that tells us exactly where the patient stands. Perhaps that is true to a certain extent, but you can learn much more accurately the degree of intracranial injury, and of pressure, by the old-fashioned method of observation. There would be no harm, of course, in doing a lumbar puncture to get additional information if it were possible, if in doing so you were doing nothing harmful, but you are doing harm when you do a lumbar

puncture. There is no question about it. You can't do a lumbar puncture on a normal individual without producing headache, and if you withdraw much fluid it may persist for several days. The headache is due to cerebral injury. The injury probably occurs because the brain is thrust against the sides of the skull. If a lumbar puncture is done in the presence of increased intracranial pressure, which obtains in cerebral injuries, the resultant trauma will be proportionately greater. It is true that the patient may improve immediately after you do the lumbar puncture, but it is only a transient change. If the hemorrhage is in the posterior cranial fossa, the patient will probably be made worse instantly owing to the injury of the medulla. If an extradural hemorrhage is present, the release of pressure is the worst possible thing that can happen to induce further bleeding. Even when pressure is immediately relieved, it cannot last because more intracranial pressure will return in the course of a few hours from the additional damage which the puncture has created. What happens from a lumbar puncture is about what happens from the fracture itself though in lesser degree. When the skull is traumatized, the brain is injured because it is thrown against the sides of the skull. The resultant injury to the brain produces within the brain, changes which are precisely similar to those which appear in the tissues elsewhere when injured. For example, an injured hand will swell in the course of a few hours. The swelling is the result of two components—hemorrhage and edema—and these occur in different proportions. Sometimes hemorrhage predominates, as in a black eye, at other times the swelling is largely fluid. All intracranial pressure results from hemorrhage and edema. It is this pressure which causes death. Lumbar puncture doesn't remove either this edema or blood. It removes the fluid from the ventricles, and this nature is able to do and does in her manner of space compensation, the fluid being absorbed into the blood."

Despite this controversial opinion, both authors present practically the same statistics—20 per cent mortality rate. We feel that this procedure in the hands of surgeons who are constantly taking care of these injuries is undoubtedly less dangerous and more efficacious than in the hands of physicians who are less skilled in the management of these cases.

2 *Hyper tonic Fluids*—Here again we have a highly controversial problem. All are agreed that hypertonic fluids should not be given when the patient is in shock. Such fluids produce a diffuse diuresis which will contribute to the shock.

Masserman<sup>6</sup> established the occurrence of secondary rise of cerebrospinal fluid pressure from the use of concentrated dextrose solutions. He advances the theory, referring to a paper by Hoff,<sup>7</sup> that it may be due to the deposition of dextrose in the nervous tissues with ensuing compensatory intercellular and intracellular edema. Sachs<sup>8</sup> pointed out that the occurrence of the secondary rises of cerebrospinal fluid pressure is beside the point clinically, as no one relies on a single dose of dextrose in a serious case. Masserman,<sup>9</sup> in another splendid paper, found that the use of sucrose in concentrated solution was practically free from the secondary rises in cerebrospinal pressure. He thinks this is because sucrose is not taken up by the intra- and extracellular tissues. Hahn, Ramsey, and Kohnstaedt,<sup>10</sup> in a comprehensive paper on hypertonic fluids in head injuries, advocate the substitution of sucrose for dextrose. They also say that in osmotic therapy it is not only the agent that is important, but the way it is used. Therefore, they came to value lumbar puncture performed periodically and by a meticulous technic as a means of keeping informed of intracranial conditions and of assisting in the maintenance of intracranial pressures consistent with life. In our series of cases we did not use hypertonic fluids. There is no proof that neural damage itself is affected by such fluid.

3 *Operation—Extradural hemorrhage*

is the only type of case that requires immediate operation

*The compound comminuted fractures* require débridement operations. Such operations must be done only at the time the patient is out of shock and is able to withstand it.

*Depressed fractures* rarely need immediate operation. This is an elective operation and should never be done until the patient is able to undergo such a procedure without endangering his life. Naffziger<sup>11</sup> has outlined the treatment of these cases.

*Subtemporal decompression* operations are often life-saving. If such an operation is done before the end of six to seven hours, the mortality rate is between 50 and 100 per cent. The longer an operation can be delayed, the better the chances are for the survival. You may have to operate after this period of time has passed, if restlessness increases or ceases as coma deepens, if the pulse and the respiratory rate oscillate, and if the temperature is rising. This is why the patient is watched and checked so frequently. Failure to note this turning point may mean the loss of the slim chance of survival. Subdural hematoma or hydroma cases can be saved only by operation and may be lost by lumbar puncture and dehydration therapy.

The statistics on operations show that, in general, we are probably relying too much on lumbar puncture and hypertonic fluids in cases that need operation.<sup>2</sup>

	Cases	Operations (Percentage)
Mock	200	10
Special cases	850	11.6
General cases	1,354	3.3
Author	97	9.3

The special clinics operate about 10 per cent of their cases, whereas the general cases show a little over 3 per cent operations. Here again we have a known reason for the reduction of the mortality rate from 40 per cent to 20 per cent.

### General Measures

*Fluids*—These are usually limited to 1,600 cc a day until the acute headache

subsides. Be careful not to dehydrate your patient to the "thirsty stage" because you will be doing harm. Patients need more fluids in hot weather than in cold. We try to gage the patient's needs rather than use a hard and fast rule on fluid intake.

*A dry diet*—This is prescribed to make the fluid limit more effective. Feed by *gavage* if the patient cannot swallow after forty-eight hours. Beware of starvation.

*Rest in bed*—This varies according to the individual case. It is never under seven days in the mildest cases, and may be as long as two to three months in the severe cases. Since it is impractical and economically impossible to keep the patients in a hospital until they are able to be up and about, when we think they are out of danger we send them home by ambulance, giving them complete dry diet, fluid restrictions, and a head slip, and instructing them to stay in bed. We try to get elderly people up in a chair as soon as possible in order to avoid pulmonary complications.

*Head wounds*—These must be completely healed before a patient is allowed to go home.

*Observation*—This is made of the patient at home by a visiting nurse, when deemed necessary, if he has no medical attendant. When the patient is up and about he is followed in the outpatient clinic.

We have grouped our cases into five classes so as to avoid any statistical controversy. The brain damage group has 1 death and 5 operations. Four of these operations were without doubt life-saving. All of these cases were as ill as our average positive skull fracture cases. The compound fracture with negative x-ray cases might have become positive x-ray cases, if further x-ray studies had been made. Many of the cerebral concussion cases were not x-rayed.

### Summary

There are five cardinal procedures in the treatment of craniocerebral injuries which reduce the present mortality rate

of 40 per cent to less than 20 per cent.

1 Patients with head injuries suffer from shock, and the first few hours are the ones that count in the treatment. Treat the shock properly, and you will decrease the head injury factors, and there will be less need of lumbar puncture, hypertonic fluids, or operation. From the time the ambulance intern picks up the patient, we have but one hard and fast rule—treat the shock and do nothing to increase it, or to cause secondary shock.

2. It has been our experience that the more severe head injury cases have other severe injuries which must be cared for in proportion to their immediate seriousness. The care of these injuries influences directly the status of the head injury.

3 The use of lumbar puncture and hypertonic fluids is helpful in some cases. The indiscriminate use of them, particularly during the shock and postshock periods, does harm, and may rob the patient of his slim chance to survive. We think too much reliance generally is placed on these procedures.

4. Immediate x rays of the skull are of no help in the treatment.

5 Operations are more frequently indicated (10 per cent) and are done less (3 per cent) than they should be.

We have reported a consecutive series of 430 head injury cases admitted to the Rochester General Hospital over the past twenty-seven months. The x ray positive fractured skulls mortality rate is 13.4 per cent. The mortality rate of the severe brain damage group, the x ray negative clinical compound fractured skulls, and the x-ray positive fractured skulls is 10.3 per cent.

277 Alexander Street

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## Discussion

Dr Eldridge H. Campbell, Jr. New York—Certain head injuries prove less of the treatment employed than with less severe trauma may prove seriously while in a third group the patient be tipped one way or the other. It is well at the outset to remember the task must and will be done. The cardinal rule, therefore is to keep the way. Dr Geib has given us a plan, and has emphasized the mission as well as those of operation.

One small but important point in the care of any comatose patient must be made at this time. The patient must be on his side with the thigh bent. With the face turned slightly away, the very important objects are the tongue and anterior nares. Forward rather than backward. One all too common error is the instruction second in this group, or vomitus will drain out of the trachea.

Hypertonic glucose, in my own experience, proves the presence of sugar within the brain itself. I have observed its effect on the table with the brain when a tightly bridged Seldom has it been of

In certain cases, harmful not only the drawal of the brain, at least, because of the patient. Decompression will arbitrary figure but rather by the that pressure. The careful clinical one can determine compensating success. severely injured a goodly number timed and operation.

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# CAN SYPHILIS EXIST APART FROM SEX?

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(From the Clifton Springs Sanitarium and Clinic, Clifton Springs)

**I**F WE limit our thought to the civilized countries of today, we must reply in the negative. Even congenital syphilis as we know it has its origin in some sexual contact, and the so-called "innocent" infections are in large proportion traceable to erotic practices.

We do not have to delve deep into the history of syphilis, however, to find records in these same civilized countries of epidemic and endemic forms of syphilis which were sometimes called syphiloids and which had the common characteristics of rural locale, preponderating childhood acquisition, and propagation from person to person through physical intimacies other than sexual intercourse. Kristian Grøn<sup>1</sup> of Oslo has described these syphiloids of Europe in detail. Such was also the Scottish disease called *sibbens*, described by Ebenezer Gilchrist<sup>2</sup> in Edinburgh in 1771.

These British and European syphiloids, embedded in medical history, had their day, however, and disappeared before the discovery of the spirochete and the Wassermann test. It is this fact that gives significance to the researches I have made in recent years on bejel, the modern Bedouin counterpart of those older examples of nonvenereally propagated syphilis. For the past fifteen years, following the dictum of Osler, I have "observed, recorded, tabulated, and communicated" the facts concerning this form of syphilis among the seminomad villagers of the Euphrates in the region of Deir-ez-Zor, Syria. Having lived for many years among these people, speaking their language, keeping careful clinical records, having every opportunity to observe their economic and sociologic backgrounds, employing darkfield, Kahn, Kolmer-Wassermann, camera, and other facilities of a well-organized clinic, treating them with arsenicals and bismuth,

I am in a position to be confident of the essential soundness of my views concerning the epidemiology, etiology, and clinical manifestations of bejel. Each of my communications, published in the course of more than a decade, has been devoted to a particular aspect of this disease.<sup>3,4</sup>

How does bejel differ from the well-known venereal form of syphilis? Fundamentally in this one respect—that it is a contagious disease of children. We are familiar with the congenitally acquired syphilis of children whose parents have acquired the disease venereally, thus, on the contrary, is syphilis acquired by one child from another, just as our children acquire measles from others.

When a child acquires bejel he soon breaks out with an eruption in the mouth or on the body. These eruptions "weep" a serum which is loaded with spirochetes, and in the play of this child with others he is a constant source of contagion. The eruption lasts for about a year, offering, therefore, untold opportunities for contagion under the frightfully unhygienic conditions of nomad and seminomad life.

My statistics, covering thousands of cases, show that at least 60 per cent of those who reach adult life have passed through this stage in childhood and are therefore syphilitic. For, when the eruption finally disappears, the disease remains in latent form. This statement is supported by thousands of serologic tests. If an individual chanced to reach adult life uninfected, his next exposure to the disease comes through contact with his own children. An uninfected man or woman seldom contracts the disease maritally, for the chances are small that two marital partners have *both* escaped the childhood infection, and if one of them had bejel in childhood, the passage of time since infection makes marital

infection unlikely. Statistics show that less than 10 per cent of the community fail to acquire bejel at some time during life.

It is a law of syphilitic disease that with the passage of time, an infected individual becomes less and less likely to transmit syphilis to another—in other words, becomes less and less infective. This explains not only the rarity of infection through sexual intercourse among the Bedouins, but accounts for the apparent rarity of congenital transmission. My statistics show that bejel "spares the next generation," inasmuch as fertility rates are good, miscarriage rates are not unduly high, congenital stigmata are rare, and infantile mortality is due in large part to causes other than syphilis.

It seems to be a fact, also, that when a child acquires syphilis early in life, the chances for subsequent involvement of the heart and blood vessels, the viscera, and the nervous system are much reduced. Bejel tends to assume a course much less dangerous to life than venereal syphilis with its attack upon the vital organs and its end in paralysis and insanity. The late lesions of bejel are rather mucocutaneous relapses, mutilating gummatous ulcers of the skin or mucous membranes, or involvement of the periosteum of the long bones.

Many late bejel cases exhibit mutilations of the nose and throat resembling "gangosa." About 2 per cent of late cases have juxta articular nodules, and there are many instances of plantar hyperkeratosis and diffuse depigmentation.

Bejel as it exists in the childhood reservoir is usually untreated, passing without restraint from child to child, and from child to adult. It is, therefore, a biologically free disease unrestricted by any barrier, unmodified by any treatment, and favored by general crowding, promiscuity, and utter lack of personal sanitation.

I have regarded and described bejel as a form of syphilis. The character of the early and late lesions, the phenomenon of relapse, the quality of latency, the uniform presence of a spirochete in

distinguishable from *Treponema pallidum*, the positive precipitation and complement fixation reactions, and the favorable response to antispirechetal drugs—all remove the question beyond reasonable doubt. Bejel has been regarded as syphilis by practically all medical men and women who have seen it.

C. M. Hasselmann,<sup>6</sup> who recently spent a month in the Near East and ten days in Deir-ez-Zor, has added his opinion to those identifying bejel with syphilis. He has added supporting histopathologic evidence which agrees with my yet unpublished material on this aspect of bejel. Hasselmann was prevented by the limitations of time from investigating personally the epidemiology of bejel, and, therefore, has been led by unqualified or biased observers into a view contrary to mine, as to the essentially childhood and nonvenereal nature of bejel. He has implied that my deductions on this point have been warped by sentimental and moralistic bias. He has overlooked, however, the years I have devoted to careful study of the social fabric of Bedouin community life and my published conclusion<sup>6</sup> that the nonvenereal nature of bejel is adequately accounted for on economic, sociologic, and geographic grounds, with no respect whatever to morals. Intimate knowledge of the locale, and the investment of a considerable period of time are both essential to qualify an observer for authoritative pronouncement on the obviously intricate question of the epidemiology of bejel in the primitive but well-organized Bedouin community.

My findings regarding the epidemiology and clinical course of bejel are supported not only by my former colleague, Dr. Crosley, by my successor, Dr. Rost, and others who have worked in the American clinic in Deir-ez-Zor, but by competent and experienced American and British physicians and public health officers in the Arab countries of the Near East.

William Corner,<sup>7</sup> who was for several years an officer of the Iraq Health Service, writes of bejel as follows: "the same disease under the same name is prevalent



among the seminomadic Arabs on the Tigris less than 200 miles east of the affected Euphrates area. There has never been any doubt as to the syphilitic nature of the condition. and its non-venereal nature has been recognized (Most of the natives contract it, many in childhood, but quite a number later) When field treatment was offered near their homes, people of all ages were found to collect in large numbers for attention, often including children and adults from the same family. Children rarely, if at all, showed signs of congenital syphilis."

T Barrett Heggs,<sup>8</sup> Public Health Adviser of the Government of Iraq, writes as follows "The fact that 'bejel,' the endemic disease of the Arab tribes of Iraq, is not transmitted by sexual intercourse has been recognized by the Iraq Health Service for some years, and by the tribes, who show no shame in applying for treatment, as they do with gonorrhea. In the official compilation of the *Vital Statistics of Iraq* published in 1935, the following comment was made upon the statistics of syphilis

'The Liwas of Mosul, Dulaim, and Amarah have a high incidence of syphilis but a low incidence of gonorrhea. This is because the syphilis of the tribes is not spread venereally, but innocently through their low standard of personal hygiene.'"

Dr Heggs's own statement continues "primary lesions are rarely seen on the genitals—a large incidence falls upon children and old people, it is not hereditary—congenital syphilis is rare, its secondaries are mild and mostly in skin and bone, sequelae of the central nervous and circulatory systems are rare, 'gangose' is seen. The tribes seen by Hudson of Derr-ez-Zor are the same tribes that inhabit our Dulaim Liwa, also on the Euphrates, and the disease described by him and by Macqueen in Palestine is identical with our endemic syphilis of the tribes here."

The reference to Macqueen relates to his report<sup>9</sup> concerning a form of non-venereal syphilis that he observed when

engaged in public health work in southern Palestine. A similar condition has been found by Torrance<sup>10</sup> in the region of Tiberias, by Napier<sup>11</sup> at Aden, and by Hewer<sup>12</sup> in the Sudan.

Clawson<sup>13</sup> in connection with his dental service for the Iraq Petroleum Company in Iraq and Syria has seen numerous cases of bejel and has confirmed my description of the disease. Mylrea<sup>14</sup> and Thoms,<sup>15</sup> speaking from experience of many years among the Arabs of the Persian Gulf, agree that there exists among the desert Arabs of that region an abundance of endemic syphilis (there called *belesh*) propagated nonvenereally in the same manner as bejel. They also record the absence of gonorrhea among the Arabs who have not had contact with the towns.

The only possible confusion in the diagnosis of bejel as syphilis is its remarkable similarity to yaws. I have previously disclaimed direct knowledge of yaws but have called attention to the features which bejel-syphilis has in common with the published descriptions of yaws. I have shown that both bejel and yaws are erected upon the epidemiologic tripod of childhood acquisition, community distribution, and general lack of treatment, and I have remarked that the more syphilis resembles yaws in epidemiology the more it resembles yaws clinically. This fact is suggestive—though not conclusive—evidence of their etiologic identity. I have introduced bejel into the literature, not to perpetuate its name, nor to becloud the issue with a third disease, but to draw yaws and syphilis closer in medical thought. Further investigation may eventually fuse them under the one head of the treponematosis of *T pallidum*.<sup>16</sup>

Hasselmann, with many others, has committed himself to the view that venereal epidemiology is an integral element in syphilis and can be used as a differential point between syphilis and yaws. Bejel, therefore, presents him with a dilemma. Either he must call bejel yaws, or he must deny its essentially

nonvenereal nature. Hasselmann has taken the latter position. Yet, it seems strange that he does not see that such similar organisms as *Treponema pallidum* and *T. pertenue* should logically produce similar disease pictures when operating in similar environments.

The other syphiloids have passed on into medical history and are no longer susceptible of analysis, but bejel is still with us, offering the answer—I believe in the affirmative—to the old question, "Can syphilis exist apart from sex?"

As a natural corollary to the position expressed in the foregoing, the question arises "Why do not the children in civilized countries have bejel?" Why does not an epidemic of this form of syphilis sweep through our child population at intervals? The answer is to be found in the fragile nature of the spirochete. This delicate germ hates light, dryness, and soap, and intimate bodily contact is requisite for its transfer from one human body to another. Among the half-clothed, unwashed, uncared for, and unisolated children of the Arabs, living in unimaginable filth, opportunities for the transfer of bodily secretions from one to another are innumerable. The relative cleanliness of children in towns and in rural civilized communities cuts off these avenues of propagation.

On the other hand, in urban and civilized communities has appeared a large uninfected adult population, and *pari passu* has appeared monogamy, delayed marriage, prostitution, bachelorhood, and marital maladjustment. Sexual intercourse, therefore, has become the avenue *par excellence* of sufficient physical intimacy in our clothed and clean population for the transfer of the spirochete and the propagation of syphilis.

We are forced therefore to the paradoxical conclusion that syphilis as we know it in civilized countries is the price which has been paid for the generally high level of personal cleanliness. Take away our soap and our sanitation and give us the filth and the physical propinquity of the Arabs and syphilis will creep back as a contagious disease of our children.

Bejel, the childhood disease of the Bedouins, shows us what we have escaped. Venereal syphilis, an undesirable by-product of civilization's hard won hygiene, remains. This gives fresh light and new perspective on the old disease, and should enable us to look more objectively upon syphilis and its relation to the human race. This realistic approach to the problem of venereal disease should help to remove the taboo which conditions our present thinking, and should strengthen that new and intelligent attitude for which so many agencies are now striving. Lack of objectivity is the highest hurdle in the venereal disease control program. Syphilis can be eradicated, once objectivity has been achieved.

### Summary

1 Sex plays an integral part in the syphilis of civilized countries. In certain areas of the world, however, syphilis is predominantly an innocent disease of childhood, acquired by contact unrelated to sex. An illustration of this type of syphilis is bejel, existing among the Bedouins of the Euphrates.

2 Sixty per cent of the inhabitants of these Arab village communities acquire syphilis by nonsexual contacts before puberty, and adults who have escaped the childhood infection usually contract bejel later from children in the same way. This fundamental fact of epidemiology brings in its train unusual features in the immunology, clinical course, and pathology of bejel.

3 Intimate physical contact is always necessary for the propagation of syphilis. Under the shockingly unhygienic conditions of the Arabs this opportunity is abundantly provided in the child population, and syphilis under these circumstances is therefore a contagious disease of childhood. The higher level of personal hygiene in civilized countries has narrowed the field of the spirochete to the physical intimacy of sex, and syphilis under these circumstances is therefore a venereal disease.

4 Bejel, like other "syphiloids" of the past and present, demonstrates that

syphilis *can* and does exist apart from sex Venereal practice is therefore not an integral part of syphilis, nor a valid differential criterion in comparing syphilis and yaws

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### Discussion

Dr Howard Fox, M D, *New York City*—The interesting paper of Dr Hudson is one of a series he has written in an attempt to prove that among the Bedouin Arabs in a certain part of the Near East, there exists a type of syphilis which is usually nonvenereal in origin. This fact, if corroborated, might be a link with yaws which is entirely nonvenereal.

I am glad to know that Dr Hudson considers the disease under discussion to be syphilis and not yaws. It might be added that practically all authorities agree on this question. Furthermore, yaws is purely a tropical disease, and the section of Syria where Dr Hudson lived for a dozen years is not tropical.

In the valley of the Euphrates in Syria, the term bejel is used to describe syphilis among Bedouin Arabs, whereas, in Palestine and Iraq, the terms firjal and loath are used. Numerous other local names throughout the Near East are also used for this disease.

I am unable to discuss Dr Hudson's views from personal experience. Until recently, most of the available literature in this country on the subject of syphilis in the Arabs of the Near East came from his pen. I can merely call attention to direct refutation of some of his statements in a

recent article in the *Archives of Dermatology and Syphilology* by Hasselmann of Manila. It is true that Hasselmann's statements are based on a visit of only one month in the Near East. It may be said, however, that he is a trained dermatologist and syphilologist and also that he has had extensive experience with yaws. Furthermore, as he was sponsored by Surgeon General Parran, he was able to cover a good deal of ground, to see many patients, to take photographs and biopsies, and to obtain opinions from the most experienced health officers and private practitioners in Syria, Palestine, and Iraq.

Hasselmann states that the transmission of syphilis among Arab Bedouins exclusively by means other than sexual intercourse is a myth. He also says that the influence of promiscuity on the dissemination of syphilis among them is by no means negligible. "Syphilitic abortions," he says, "are common among Bedouin Arabs but are less often reported and admitted than by Arabs who reside in towns. This is due to the well-known reluctance of Bedouin women to admit failure to bear children, especially boys."

Hasselmann concludes "Aside from the preponderance of lesions exclusively of the oral mucosa, in a people of whom a considerable percentage must have latent syphilis, syphilis runs the same course in the Near East as elsewhere. Hence, it is misleading and confusing to call it by a local colloquial name."

The point upon which Hasselmann and other writers agree with Dr Hudson is the great frequency of oral and pharyngeal lesions. The reason for this fact does not seem clear.

Theoretically, filth and crowded living conditions might tend to the propagation of nonvenereal syphilis. At least, this has not taken place in any part of the world except in the Near East—assuming Dr Hudson's contentions to be correct. Yaws is certainly contracted in this manner and might thus have another point of similarity to syphilis. There are sufficient clinical, laboratory, and immunologic distinctions which make it reasonably certain that syphilis and yaws are different diseases.

Dr Hudson, closing the discussion, said

Some objection has been raised to my introduction of the word bejel. I have felt the use of the word justified, however, in the sense of a label for this type of syphilis. Under certain environmental conditions syphilis does exist in a nonvenereal form. Once this fact has been generally grasped, the word bejel may be discarded, but meanwhile it is useful in distinguishing this type of syphilis from the usual venereal form.

Dr Fox remarks that assuming my contentions are correct the Near East seems to be the only area in which filth and crowded living conditions have caused the propagation of nonvenereal syphilis. I do not place bejel in this unique position. Medical literature has provided many references to the nonvenereal syphiloids propagated in this fashion. In this connection bejel is noteworthy only in the thoroughness with which it has been studied and reported.

As to the credibility of Hasselmann's authorities, I must question the accuracy of the statement that they are 'the most experienced health officers and private practitioners in Syria Palestine, and Iraq'. Those doctors who live in such coastal cities as Damascus Jerusalem or Beyruth know about bejel only through hearsay. As to the native Arab doctors of the interior

whom Hasselmann quotes, a long experience in the Near East leads one to place at least equal reliance upon the competent British and American physicians and health officers whose official reports and published statements I have quoted. Hasselmann's statement that the nonvenereal propagation of bejel is a myth falls under the weight of substantial opinion to the contrary.

A further point needs to be made clear. The phrase and not yaws' which Dr Fox uses is not mine. I believe bejel is syphilis but I am not prepared—as Dr Fox seems to be—to go further and to reject the possibility of its identity with yaws also. The relationship of syphilis and yaws is in my opinion still *sub judice*. In fact as I have said elsewhere, bejel seems to furnish strong evidence in favor of the identity of these two treponematoses.

### THE AMBULANCE'S PERILOUS PACE

A New York doctor who signs himself L. W. M. D. writes to the *Times* to protest against the foolhardy speed of the ambulance to reach a case which ninety nine times out of a hundred will get well without any medical attention, endangering the life of driver and surgeon.

The loss of a single physician in an ambulance accident means a loss of an average of thirty five years' medical service to the community he asserts and goes on to say that the vast majority of ambulance calls do not result in additional hospitalizations. Most of these cases are treated on the scene and discharged. Once in a blue moon is there need for speed but these instances are so rare that they are scarcely worth the risks involved.

Even in this city local physicians are in a better position to give immediate assistance and should be called without waiting for an ambulance to reach the scene from some point two to ten miles

away and separated from the site of the accident by busy intersections, women, children, and various vehicles.

Also to a physician it is ridiculous to read about a mad rush to deliver some rare serum from one end of the town to another. I have yet to learn of a serum that must be delivered within a number of minutes if a life is to be saved. I question whether such a serum has been discovered.

Nevertheless we read every now and then of Policeman So-and-so receiving a medal for delivering a vial of anti this-and that virus through twelve miles of heavy traffic in less than ten minutes.

He deserves a medal for being able to maneuver his motorcycle so well but the chances are that he was in greater danger during those ten minutes than the patient was during the whole course of his illness.

### MODERNIZE THE OFFICE WITH UNCLE SAM

Legislation has extended for two years more the period in which doctors can renovate and modernize offices with FHA loans. New amendments provide that loans to \$2,500 may be obtained from cooperating institutions. Loans for office alterations or repairs are repayable in three years; loans for home or home-office construction are made for periods of as long as ten years. The maximum finance charge remains \$5 per \$100 for modernization loans; \$3.50 per \$100

for residential, or partially residential construction loans.

Candidates for loans must have 'good credit standing' and regular income. Renters may modernize their offices only if they hold long leases. Among improvements that may be purchased with the loans are heating, lighting, ventilating, plumbing and air-conditioning systems, doors and windows, driveways, walks, landscaping, built-in medicine cabinets, bookcases,

# TREATMENT OF COLONIC DIVERTICULITIS

THOMAS E. JONES, M.D., Cleveland, Ohio

IN RECENT years, extensive routine roentgen examinations of the gastrointestinal tract have shown us that diverticulosis is much more common than was previously supposed, and we also know that many people go through life without any complications resulting from them, just as many people do with gallstones that may be asymptomatic. Diverticula are sacculations or small herniations along the lumen of the large bowel caused by muscular defects or protrusion of the mucosa through attenuated spots in the underlying coats. Hence there are only two layers in the diverticular walls—the mucosa and the peritoneum.

Diverticula occur more commonly in males, the ratio being about three to two. It is seldom troublesome before the ages of 40 years and is preponderant between 50 and 70. Obese patients are more likely to be affected than those who are thin.

Diverticula may occur throughout the entire colon or they may involve one or more segments, but it is worthy of note that ordinarily only those in the sigmoid give rise to complications. This is probably due to the fact that the lumen of the sigmoid is smaller in caliber and the stool is firmer.

The incidence of diverticula is between 5 and 7 per cent, as determined by routine examinations. When an inflammatory process arises in a diverticulum, the condition known as diverticulitis results, and studies of a large number of cases have shown that in about 15 per cent of cases of diverticulosis, diverticulitis results. Therefore, in 1,000 routine cases, there will be about 60 cases of diverticulosis, in approximately 8 of which the complication known as diverticulitis will develop.

I think it is common practice to regard

diverticulosis discovered in a routine examination lightly because it is known that the chance of the development of complications is only about one in eight or ten. I do not think this is the proper attitude because it may be that wise medical care would save a certain number of these patients from future complications. Furthermore, it is quite possible that many minor disturbances of the gastrointestinal tract may be reflexes from these apparently benign conditions. If a case is discovered during a routine roentgen examination and if the patient has no abdominal distress and the bowel function is normal, prophylactic treatment can be instituted, involving the use of a relatively smooth diet and the avoidance of ingestion of seeds or coarse fibers which may get into the diverticulum and result in irritation. But picture, if you will, a diverticulum that becomes filled with colonic contents or a foreign body. As was stated previously, a diverticulum is a pouch that has no muscular coat, so it is unable to empty itself. The contents become solidified, cause ulceration in the mucosa, and infection ensues, which produces the picture of diverticulitis. It is apparent, then, that the signs and symptoms vary greatly according to the extent of the process, ranging from a slight soreness in the left lower quadrant to the more grave symptoms of obstruction and peritonitis.

For practical consideration, diverticulitis may be classified into three groups. (1) diverticulitis with enterospasm, (2) diverticulitis with infiltration, and (3) diverticulitis with perforation.

It is apparent that these are progressive stages of the same pathologic process and that two or more stages may be present at the same time. It must also

be realized that even though diverticulitis has been called left sided appendicitis, the surgical problems presented do not parallel those of acute appendicitis, and while generalized rules may be applied, this condition calls for much more in individualization.

### Diverticulitis with Enterospasm

The first is probably the most common of the three types. The patients in general give a history of a change in bowel habit. An increasing constipation has been noticed for a few days or a week, and frequently an attack may be precipitated by excessive use of laxatives for this constipation. The patient is conscious of a soreness in the lower part of the abdomen, chiefly in the left side, although occasionally it will be in the right side because the sigmoid may occasionally be found there, and appendicitis may be suspected. A differential point is that the pain in diverticulitis is generally below the umbilicus, whereas epigastric pain is present early in appendicitis with localization later. There is rarely any elevation of temperature or leukocytosis. Generally there is not a palpable mass, although in thin patients one may feel a spastic sigmoid that is definitely tender.

Röntgen examination by use of the fluoroscope and the barium enema is most valuable in cases of this type. A varying degree of spasm will be found over a considerable length of the sigmoid, and it may be so great that it causes an intermittent obstruction to the flow of the enema, during which the patient will complain of pain in the lower left quadrant. These films, in addition to showing diverticula, will present a double saw tooth appearance of the sigmoid due to spasm of the circular fibers.

In the majority of cases seen in this stage, the inflammatory reaction subsides following treatment, which is medical. The patient should be put to bed and large hot packs should be used over the entire abdomen. In addition to a smooth diet, the intermittent use of antispasmodics and sedatives is usually indi-

cated. If tincture of belladonna is used, it is given in full physiologic doses which, of course, because of varying degrees of tolerance, must be adjusted for each patient. The intermittent use of relatively small doses of phenobarbital before meals has been found effective in relief of intestinal spasm. After subsidence of the acute symptoms, the patient should be instructed to avoid irritating laxatives and an effort should be made to restore normal bowel habits. In order to re-educate the rectum, it is advisable to use a glycerin suppository or a small plain water enema at the habit time for a week or two. If the patient has had hard, dry stools, small oil retention enemas (2 or 3 oz.) at bedtime may be used at the start of the treatment. Drinking plenty of water, taking adequate exercise, as well as making certain that there is ample residue in the diet, are important principles to include in the management.

It has frequently been noted that patients with an irritable bowel due to this condition will volunteer the information that they feel better following the roentgen examination. Presumably this is due to the filling of the diverticula with barium, and on this assumption we advise the patient to take a tablespoonful of barium sulfate in water twice a week in order to keep the diverticula filled with barium and to replace the infectious material.

There is some controversy regarding the use of mineral oil in these conditions. The ideal to be achieved is a formed, soft stool, and it may be necessary to use oil in some cases.

### Diverticulitis with Infiltration

If diverticulitis with enterospasm does not subside under this treatment, it progresses further into stage two, namely diverticulitis with infiltration. Here roentgen examination shows an increase in the deformity in the bowel and, instead of an inconstant filling defect due to spasm, it presents a harder, more fixed appearance caused by the inflammation and edema of the bowel wall. Due to this inflammation and edema, the filling

defect is quite long, and this is a valuable point in making a differentiation from carcinoma, where the filling defect is limited to a narrower segment. Furthermore, the edema in the bowel wall may close off the ostia of the diverticula so that they may not fill with barium and so be visualized. In this type it may not be possible to make a differential diagnosis between diverticulitis and carcinoma, and one must resort to clinical measures to make the differentiation. In both diverticulitis and carcinoma a mass is frequently felt, but generally there is considerably more tenderness on palpation in diverticulitis than in carcinoma, unless there is impending perforation in the malignancy.

The obstruction that results from diverticulitis is due to extrinsic inflammatory reaction and contraction of the underlying coats of the bowel, in contradistinction to that produced by ulcerating carcinomas. There is no evidence to support the view that carcinoma results from diverticulitis, although in a very low percentage of cases both lesions may be present in the same segment. These two diseases occur in the same period of life and it is only natural that they should coexist in a certain proportion of cases. In a series of over 300 cases of resections of the rectum and rectosigmoid, I have encountered this double condition in only 3 cases, or 1 per cent. There is generally a slight elevation of afternoon temperature in the case of diverticulitis, as contrasted with that in malignancy. A history of increasing constipation in middle-aged and elderly individuals is common in both conditions, but the time element is a valuable diagnostic aid. Bleeding is a very significant sign and is of course, far more common in carcinoma than diverticulitis. When bleeding occurs in diverticulitis, it is generally due to hemorrhoids, and therefore it is absolutely essential to make a proctoscopic examination before a final opinion is rendered.

It is apparent, then, that the diagnosis is not easy and it entails a careful history and thorough palpation of the abdomen,

followed by digital and proctoscopic examinations, and lastly roentgen examination by use of the fluoroscope and films. Only after evaluation of all these data can we hope to attain any proficiency at diagnosis and treatment. Even at operation the surgeon may be unable, in certain cases, to differentiate between diverticulitis and carcinoma, hence it is necessary to secure all information possible.

The treatment in stage two is also medical until such time as complications arise. The patient should be put to bed with large, hot compresses over the entire abdomen. Diet should be a bland, non-residue one, and antispasmodics and sedatives should be used liberally. Oil retention enemas at night and warm rectal irrigations should be used each morning. After the attack has subsided, the principles of bowel management previously outlined should be followed.

If it does not subside, obstruction is the chief complication in this stage. It is due to the tremendous thickening in the mesentery and in all the coats of the bowel. Here clinical judgment alone decides the optimum time for surgical intervention. The duration of the ailment, the general condition of the patient, the degree of distention, and the presence of vomiting must all be considered in making the decision. I incline to the conservative side. If the indications for surgery arise in this stage, I think it should be limited to a colostomy at some distance above the mass. I am aware that it is possible in occasional cases to do a Mikulicz operation and to resect the mass, but in most instances the bowel must be mobilized in order to bring it out. I do not think it is a sound surgical principle in the presence of a diffuse inflammatory process in the bowel wall. At any rate, we know that there is a definite mortality from this procedure, whereas a colostomy carries practically none. If the process is low in the sigmoid, a left inguinal colostomy may be done. If the mass is definitely palpable in the lower left quadrant, I think it is wiser to make a colostomy in the transverse colon. This

procedure will take care of the emergency and the process will generally subside under through and through irrigations.

After convalescence, progress studies by sigmoidoscopic and roentgen examinations will determine the future course to be taken. The process may subside entirely so that the colostomy may be closed, but the patient should be encouraged to keep the colostomy for six months or one year. If the diverticular process is limited to a segment of 4 to 6 inches, it may be wise to consider resection of this segment while the patient has a colostomy, but if the roentgenogram shows the diverticula to be more extensive than this, resection may not be feasible. In this case, the patient must assume part of the responsibility if he insists on closure of the colostomy, because we cannot guarantee that he may not have a recurrence of his trouble. In case the colostomy is closed, the patient must be put on rigid bowel management in an effort to offset further trouble.

### **Diverticulitis with Perforation**

In the third stage—viz, diverticulitis with perforation—this perforation may be acute or it may be chronic, and while fewer cases occur in this group, they present definite difficulties in diagnosis.

In the acute fulminating variety, the symptoms are so alarming that it constitutes an emergency and the diagnosis is frequently not made until exploration is undertaken. The preoperative diagnosis is generally that of acute appendicitis, volvulus, or perforation of a viscus. That the diagnosis of acute appendicitis is most commonly made is not surprising because very frequently the sigmoid is in the midline or even over the right side. The only responsibility one has at this time is to save the patient's life, and in any emergency therefore, we must carry out only the simplest surgical procedure that will deal adequately with the lesion. In acute perforating diverticulitis this consists only of incision and drainage. A tube and gauze drain should be placed down to the area of perforation. One

should not attempt to close over the perforated area with sutures because the sutures will not hold in the infected, edematous wall of the gut. Furthermore, it is time-consuming and traumatizing and may conceivably break down protective barriers.

Postoperative treatment is symptomatic and directed toward the prevention of peritonitis. If the bowel wall is greatly thickened and there is evidence of obstruction, a cecostomy for decompression may be done at the same time. The judicious use of prontosil is worthy of trial in these fulminating cases. If the surgeon does not see these patients until twelve or twenty-four hours have elapsed, he must then use his own clinical judgment as to whether operation should be performed immediately or whether he should use symptomatic treatment and wait for localization.

Chronic, or what one may term gradual, progressive perforation with formation of a peridiverticular abscess confronts the surgeon with a real problem, both from the diagnostic and the therapeutic standpoints. Here again, the condition must be differentiated from malignancy by the use of the methods described previously. In favor of perforating diverticulitis is a history of several previous attacks with pain and elevation of temperature. Constipation is the rule and blood in the stool occurs only occasionally. Rectal examination will frequently reveal a tender mass in the pelvis. In the female one must constantly bear this possibility in mind in case of a pelvic mass, whether it be in the right or left side because frequently a loop of sigmoid may be found on the right side. Wetherell, in a recent paper, has dealt with this subject at some length. Such masses are frequently called tubo-ovarian abscesses, and here an accurate history and the age of the patient are valuable diagnostic aids. Early symptoms, especially in men, may often point to pathology in the genitourinary tract, with frequency of urination and pain in the lower abdomen, which is referred to the kidney. This is due to the proximity



of the inflammatory process to either the bladder or the ureter

In these cases with abscess formation, roentgen examination must be used cautiously, especially where there may be increasing obstruction. A routine examination of the colon should not be ordered, but the roentgenologist should be used as a consultant. Tell him what is suspected, because roentgen technic is varied according to the problem at hand.

In the presence of peridiverticular abscess, one of the following things may happen (1) it may perforate into the bowel with discharge of pus, (2) it may perforate into the bladder, (3) it may perforate into the surrounding tissues and become walled off, or (4) it may perforate through the pelvic floor and simulate an ischiorectal abscess or fistula *in ano*.

If it perforates into the rectum, it is a fortunate and happy sequel. There will be sudden relief from pain and the patient will have several movements which, if examined, will be seen to consist chiefly of pus. Treatment is symptomatic and attention should then be directed along medical lines, as outlined previously, to offset possible recurrence.

If it perforates into the bladder, a vesicocolic fistula results, which is a miserable complication evidenced by marked irritability of the bladder and the passage of pus, feces, and air per urethra. The first step in handling such a condition is to do a colostomy high in the sigmoid or preferably in the transverse colon to sidetrack the fecal current. Following this, daily irrigation of the distal segment and the bladder should be instituted. If the opening is very small, it is conceivable that the opening will close spontaneously. This can be determined by cystoscopic examination and cystograms or by irrigating the colon with a solution of gentian violet to see if it is recoverable in the urine. A barium enema should also be given to determine the extent of the process in the sigmoid, from these facts one has the option of closing the colostomy if the bladder fistula is closed, or of

resecting the process before the colostomy is closed. The choice of the procedure depends upon the amount of bowel involved. If the segment involved is short, then resection is the treatment of choice. If it is long, it would be advisable to keep the colostomy for a long time, even if the fistula has closed spontaneously. I am sure that laparotomy with dissection of the fistula and closure of the bladder and colon in one stage without preliminary colostomy is poor surgery. It carries a high mortality and frequent recurrence, or one will end up with a persistent abdominal fistula.

Finally, if the perforation is into the mesentery or surrounding tissue, it may become walled off. In this case, it may find its way out on the abdominal wall or the buttock or it may be incised extraperitoneally when it seems to point.

The optimum time for intervention in this type of case taxes one's surgical judgment to the utmost.

During this waiting process, symptoms of obstruction may develop that may give the surgeon considerable anxiety. If the process appears to be localizing otherwise, I would advise a cecostomy or transverse colostomy, and at the appropriate time a left McBurney incision should be made and the abscess drained, because such abscesses eventually point in this area.

Whether the abscess ruptures spontaneously or is opened surgically, the end result is generally a fistula, and the next problem is what to do about the fistula. This depends on many factors. If the patient did not require a colostomy, I would not do anything about the fistula for a long time because I have seen them close spontaneously after fifteen months. The fistula is very little nuisance, generally discharging pus but rarely any fecal material.

If a colostomy has been performed, the patient is naturally anxious to have it closed. In this type of case one can secure considerable information by injecting the sinus with bismuth, and with a barium enema the extent of the process in the colon may be ascertained. If a

small segment is involved, resection of that segment, including the fistula, may be undertaken before the colostomy is closed. It is not good surgery to dissect out the fistula down to and including the diverticulum and to try to close the bowel over, because it will fail in most cases and the fistula will re-form.

If the entire sigmoid is involved, the patient should be encouraged to keep the colostomy but, refusing this, he must realize that the abdominal sinus will probably be permanent. This causes little inconvenience provided it is kept open and allowed to drain. It is well to bear in mind that a chronic fistula in and around the rectum that has been attributed to a fistula *in ano*, or a pilonidal sinus, may have its origin in a diverticulitis of the lower sigmoid with abscess, which has burrowed through the levator ani and has pointed on the buttock, so that the injection of every chronic, recurring, complicated fistula *in ano* is advisable before operation.

A review of the last 12 cases shows that we had to resort to eight different maneuvers in their management. I know of no abdominal ailment that calls for more individualization or taxes one's surgical ingenuity more than diverticulitis and its complications.

### Discussion

Dr Frederick S. Wetherell, *Syracuse New York*—No one can question the soundness of Dr Jones's reasoning and advice as to the proper handling of patients with diverticulitis of the colon. The stress he lays on the conservative, nonoperative treatment in this condition until the time arrives when surgery becomes imperative, because of a perforation or unrelieved obstruction, meets complete agreement on my part. It must be remembered however that obstruction in the lower colon is not attended by the same danger as higher obstructions, and that one

may practice conservative treatment (bed rest and liquid nourishment) for several days on end while giving the inflammatory process a chance to quiet down. This may occur after as long a time as ten days, in my experience.

Surgery can be avoided furthermore by earlier diagnosis of the condition. Dr Jones has called attention to something I had to say on this subject as it pertains to women. In that paper<sup>1</sup> I called attention to the need for a careful anamnesis regarding bowel function, and in particular to the necessity of finding out whether the patient has ever had an attack of cramps with constipation and abdominal distention. These attacks cause a soreness that is much like that which follows a muscle sprain. Every step is accompanied by an abdominal pain response. That is a typical picture of an early attack.

The history will further reveal a perfectly good appetite accompanied by no little amount of gas expulsion per rectum. Recently I saw in a cadaver a diverticulum of the sigmoid that popped in and out, much like the little red rubber tongue in the face of the toy rubber ball with which children amuse themselves. A diet low in gas-forming residue, or a colon with a low content of organisms that make gas, might readily avoid trouble, even though diverticula were present. But given the opposite condition, to which is added a diverticulous wall, with small openings into certain of the diverticula. It is not difficult to picture a liquid bowel content following dietary indiscretion being forced into a pocket under gas pressure and there causing an inflammatory reaction that proceeds to perforation or extension. In diverticula with larger openings the contained material could more easily escape, and untoward results be thus obviated. I advance this theory with the hope that it may impress you with the necessity of explaining to patients the importance of a low residue diet and other measures to lower the gas content of the lower bowel. The natural way to achieve the latter is not always possible in our present status of society and our indoor life. Active outdoor people seldom have diverticulitis.

<sup>1</sup> Wetherell, Frederick, B.: *Am. J. Obst. and Gynec.* 33: 3 417 (1935)

### CULTS MUST DOCK THE DOCTOR

Cultists whose shingles bear the title "Dr." without a further explanation of their true status may find themselves in jail under a new West Virginia statute. Its sweeping provisions apply to "any person" who uses "the prefix Doctor" or

"Dr." in any letter, business card, advertisement, sign, or public display of any nature with out affixing words designating the degree he holds. Fines of from \$10 to \$500 plus a year's imprisonment will be imposed on violators.

# DISCUSSION OF SOME BRONCHOSCOPIC PROBLEMS

HERRMANN E. BOZER, M D, Buffalo, New York

**B**RONCHOSCOPIC practice, as in all branches of medicine, has its own peculiar problems. Being a rather young member of the medical fold it may well have more than its expected share. I shall mention only a few of these, hoping that an ensuing discussion may help still more in clarifying some of these conditions.

The taking of a biopsy is generally considered by the internist as a more or less routine procedure in any bronchoscopic clinic. Cases of neoplasm of both esophagus and tracheobronchial tree are generally diagnosed by the medical and x-ray services and referred to the bronchoscopic clinic for confirmation by both visualization and biopsy. It is the endeavor of the bronchoscopist to give this service in all cases. He would like to keep a high batting average. In a published series of cases he would like a high percentage of successful biopsies. And it is just at this point where the element of danger may creep in. In a case of suspected bronchiogenic cancer, a thickening of a bronchial wall may tempt him to bite out a piece for examination because no presenting tumor appears. A malignant appearing ulcer of the esophagus at the level of the aortic arch may offer an almost irresistible impulse for just a small biopsy. Either of these conditions may be fraught with great danger, and a bronchoscopist, even when most conservative, may at times in his endeavor to clinch a diagnosis run into trouble when least expecting it.

In our own practice we have earnestly endeavored to take no risks of a patient's life in any attempt to make a diagnosis. And yet the case we now report shows the ever-present danger in taking biopsies.

Case 1—J. C., aged 43, colored, entered the Meyer Memorial Hospital June 6, 1936, com-

plaining of pain in the abdomen and numbness of the legs. There were no complaints referable to the chest. A general physical examination disclosed a gastric ulcer which responded to medical treatment. All laboratory work, including blood and spinal fluid Wassermann, was negative. An x-ray of the chest showed a dense, circumscribed shadow 6 cm. in diameter projecting from the left hilus. The remainder of the side showed no infiltration. The heart and aorta were within normal limits. The left diaphragm was elevated about an interspace. Fluoroscopic examination also revealed the tumor, not sharply outlined and showing a transmitted pulsation. In lateral view it occupied the middle of the lung just below the aortic arch. The roentgenologist felt that the mass was not an aneurysm and suggested bronchoscopy to confirm the presence of neoplasm.

Bronchoscopy was performed—no tumor presented in the left main bronchus, but in the orifice of one of the lower branch bronchi the lining membrane appeared red and swollen. It did not look like a tumor and showed no pulsation. After careful study and consultation with an associate bronchoscopist who was present, biopsy was decided upon. A very small piece was removed. There was an immediate gush of dark blood. The hemorrhage was very profuse, and in spite of all efforts and emergency transfusion, the patient expired in forty minutes. Autopsy was refused. The biopsy was too small to be satisfactory. It showed no orderly structural components of a bronchus and no epithelial lining. It was composed of elastic connective tissue, between the cells of which was considerable broken-down blood pigment.

In this case, what we took to be tumor or inflammatory membrane, presented itself into the lumen and was carefully considered before biopsy was taken. Nevertheless, disaster resulted.

Whenever the safety of taking a biopsy is not clearly perceived, then it may well pay to keep a patient under observation until such safety may be apparent. The decision as to when and when not to

resort to biopsy constitutes the problem

*Case 2*—Such a problem—at present still with us—is the case of G B white, aged 30 who applied for admission to the Edward J Meyer Memorial Hospital December 1 1938. His chief complaint was hemoptysis for the past two and a half months. The patient had been a steam fitter for eighteen years. His family history and past history were not significant. Four months previously he had developed a cough which had persisted and increased gradually in severity. Two and a half months previously he had had hemoptysis of a cupful of bright blood. Since then he had had frequent streaking and occasional hemoptysis of as much as one half cupful of blood. This had been accompanied by a moderately sharp pain over the right anterior chest and axilla. Cough had not produced pus, and there had been no night sweats or loss of weight.

General examination in the hospital revealed no significant findings except that the chest at times showed bronchospasm and some moisture in the upper right lobe. There was no fever and Wassermann urine, and several sputum examinations were all negative. X ray reported bilateral fibrosis manifested by increased hilar shadows and linear markings—more so on the right side. The heart and aorta were within normal limits and the diaphragm was normal in position and contour.

Bronchoscopy was performed but upon reaching the lower trachea the patient gave a cough which resulted in an immediate hemorrhage from the right bronchus so obscuring the field that no attempt at further examination was made.

One week later bronchoscopy was again performed. A tumor of the posterior and lateral walls of the right main bronchus just above the orifice of the upper lobe bronchus was seen. This tumor was conical and caused by a mass pushing the posterior wall of the bronchus forward—the cartilage of the bronchial wall being pushed out of place and upward. An erosion of the tip of the tumor accounted for the bleeding. There was a definite pulsation of the mass.

Because this tumor was evidently a mass arising posteriorly and pushing the bronchial wall ahead of it, and because of the history of severe hemoptysis biopsy was not taken. Bronchoscopy has been performed several times. Five weeks after the first observation, the tumor showed increase in size, but still retained a smooth outline and pulsating character.

We could not be sure at the first examination that the tumor was not an aneurysm of the

pulmonary vessels. On the other hand, it might be a suppurating lymph node breaking into the bronchus or a mediastinal tumor. With the history of very severe hemoptysis we decided that safety was paramount and biopsy has been deferred until further observation makes it seem safer.

Another problem that frequently presents itself is the advisability of using bronchoscopy in the cases of lung infection, which are not ordinarily considered within the province or reach of bronchoscopic measures. It is conceded that centrally placed abscesses, or foreign bodies of the tracheobronchial tree, centrally placed tumors and the various pathologic conditions set up by tuberculosis in the main bronchi are amenable to bronchoscopic manipulation. In an effort to be known as safe and conservative we may give a negative reply to the medical man when he turns to us with his troubles, which may frequently lie peripherally to what we consider our own particular province. Here we may be guilty of sins of omission. The following case illustrates this point.

*Case 3*—C G aged 52 had been ill for two and a half weeks with an acute inflammatory process in the upper right chest. He had a daily elevation of temperature to 103 F., perspired freely and suffered marked prostration. Cough was persistent but not productive. A thoracentesis was done at home and a small amount of cloudy fluid was obtained. Cultures of sputum showed predominantly hemolytic streptococcus.

The patient was transferred to the Buffalo General Hospital for x ray. The result showed the upper right lobe blocked off by a density which was more or less homogeneous. There was no fluid level or any displacement of the mediastinum.

A consulting thoracic surgeon was called for consideration of external drainage of the pleural cavity but recommended bronchoscopy first in an effort to determine whether the infection was not predominantly intrapulmonary.

Bronchoscopy was performed and the upper right lobe bronchus aspirated by means of a flexible tube. A moderate amount of thick tenacious pus was obtained. Following this there was a very quick and marked improvement and the fever left on the second postoperative day and did not reappear. Cough and pulse de

creased and the patient made a quick and uneventful recovery. It was quite evident that the resolution of the infection in the upper lobe was prevented by obstruction of the main upper lobe bronchus due to very thick tenacious secretion, which acted as a foreign body that the patient, in his very weak condition, could not dislodge.

Complete bronchial obstruction is not necessary for an unfavorable outcome. A patient with lung suppuration may be raising considerable sputum and still lack sufficient drainage. The following case illustrates this point.

*Case 4*—D L, aged 34, was admitted July 25, 1937, to the Buffalo General Hospital. One week previously he had "caught cold," which settled in his chest. A severe paroxysmal, non-productive cough, high fever, and prostration ensued. On admission the temperature was 105 F, pulse 40, and respiration 28. Physical examination revealed definite signs of involvement of the right lung. Sputum examination showed hemolytic streptococcus and pneumococcus, Types XVI and XIX. X-ray showed a large density to the right of the heart shadow, beginning at the hilus shadow and extending down to the diaphragm.

The patient's condition for the next twenty-six days in the hospital remained about the same. The temperature never went below 100 F, and it generally ranged between 101 and 102 F. He coughed frequently, at times raising some thick, not foul, pus. Frequent x-rays at no time showed abscess formation. On August 21 bronchoscopy was performed. A great deal of very thick tenacious pus was aspirated from the right main bronchus and secondary branches.

The patient made an immediate improvement. The temperature came down to normal the following day and remained so with the exception of a slight peak the fourth succeeding day. It then remained normal throughout convalescence.

The case resembled the first one in the severity of the infection, but differed in that the patient was apparently draining freely. In neither case were there the classic indications for bronchoscopy. However, both patients were very sick and were getting worse, the first one alarmingly so. Both cases made immediate and striking improvement after bronchoscopic aspiration. It would thus seem that any nontuberculous case of

lung suppuration who is not responding well to medical care should be considered a candidate for bronchoscopic treatment, even if the indications for such are not clearly defined.

The above consideration should also be extended to diagnostic problems. Quite frequently bronchoscopic examination will disclose additional features not suspected in the course of the clinical or x-ray examination. This is well illustrated in the following case.

*Case 5*—Mrs M C, aged 49, entered the Millard Fillmore Hospital December 12, 1936, complaining of cough of six months' duration and persistent indigestion and anorexia of three months' standing. Physical examination showed a tender swelling over the right fourth and fifth ribs. All other findings were of no significance except râles and some suppression of breath sounds in the right lung.

X-ray of the gastrointestinal tract was negative. X-ray of the thorax showed a partial destruction of the right fourth and fifth ribs in the midaxillary line, and some adjacent pleural lining infiltration. Although the very fine x-rays showed the pathology to be peripheral, making a bronchoscopic examination unnecessary, the consulting thoracic surgeon asked that such an examination be made. Lipiodol injection under bronchoscopic guidance revealed large irregular cavities in the involved lung which had not been suspected before. Exploratory operation revealed squamous cell carcinoma, diagnosed by biopsy.

When bronchoscopy was first suggested in this case, the question at once arose as to just how such an examination could give any helpful information, in so far as the obvious lesion was apparently entirely peripheral. The lipiodol had to be injected directly into the secondary bronchus to obtain the picture, and readily revealed that the pathology of the lung was much more extensive than it had at first appeared.

Tuberculosis, of all diseases, probably offers the bronchoscopist the greatest variety of conditions for diagnosis and treatment. Likewise, it may offer the greatest problems and difficulties, such as the search for unexplained hemoptysis, the treatment of tracheobronchial ulceration, the removal of occluding masses of tuberculous granulations, the removal of caseating lymph nodes that

have broken into a bronchus and are acting as occluding foreign bodies, and the dilation of cicatrices resulting from healed tuberculous ulcers. All of these present their various and difficult problems. However, the most serious and most discouraging condition is probably the almost impossible task of keeping open a main bronchus where the supporting cartilaginous framework has been destroyed, permitting the collapse of the bronchus and resulting in obstruction to the drainage of secretions and pus from distal points of infection. The following case illustrates the difficulty.

*Case 6*—Mrs E S aged 35 entered the Buffalo General Hospital December 12 1938, because of chills and fever. Her illness began in 1930 when after a thorough examination she was told she had a lung infection and rest for a year was advised. In October 1931 she entered a sanatorium in Michigan where a diagnosis of bilateral pulmonary tuberculosis was made and a left phrenicectomy was performed. She was discharged after a month and remained at home under a physician's care quite comfortably until October 1936. At this time her cough increased and she raised a considerable amount of purulent sputum. She re-entered the sanatorium and remained there until her family moved to Buffalo in December 1938. During the stay at the sanatorium she developed an obstructing lesion of the left main bronchus for which twenty-six bronchoscopies were performed. The bronchus was at first closed by a proliferating mass, biopsies and histologic examination of which led to a diagnosis of inflammatory tissue. This inflammatory tissue was removed from time to time and the site of its origin from the bronchial wall touched up with silver nitrate. The bronchus gradually collapsed and at the last bronchoscopy, the examiner reported the bronchus practically closed except for a small dimple through which secretion oozed on coughing.

When this patient reported to us she stated that she had to have that bronchial stricture dilated about every ten days or she retained secretion caused her to become toxic and have chills and fever. We bronchoscoped her and found exactly the same condition as reported by the previous physician. Considerable force was used in passing a bougie through the obstructed bronchus and then dilating with expanding bougies. The collapsed portion of the bronchus extended from the carina down for at least 2 cm. A great deal of pus was aspirated. In all

the many specimens of pus sputum and granulated tissue removed from the patient, no acid fast bacilli has ever been found. Guinea pig inoculations have given no positive results.

The problem in this case lies in the effort to keep free drainage for the abscessed left lung. The bronchial function is so far impaired that frequent dilatation is required and this is only accomplished with difficulty. The nature of the occlusion precludes the possibility of keeping in a permanent canula. The only alternative would be pneumonectomy which in this case would carry a tremendous risk or open drainage with its attendant difficulties.

I have pointed out but a few of the many problems that confront any bronchoscopist. They include problems not only of technic but often those of judgement which require a much longer and wider experience to solve than any that technic alone may demand.

## Discussion

Dr Clyde A. Heatly, Rochester New York—Dr Bozer has presented several problems of great interest. Unquestionably in certain instances the taking of a biopsy introduces an unnecessary hazard. In my opinion no attempt is justified in biting through intact mucous membrane in order to demonstrate a suspicious peribronchial or periesophageal neoplasm.

Dr Bozer has described two most instructive cases of acute lung suppuration in which bronchoscopy proved of unexpected value. I feel that we cannot emphasize too strongly the necessity for performing a diagnostic bronchoscopy early in cases of acute pulmonary abscess irrespective of the method of treatment later to be employed. Statistics indicate that the vast majority of acute lung abscesses treated bronchoscopically show a high rate of recovery (80-90 per cent). In chronic abscesses as well before surgical treatment is carried out at least one bronchoscopic examination should be done. In no other way can we eliminate the possibility of bronchial obstruction from foreign body granulations, stricture, or new growth.

Tuberculosis of the trachea and main bronchi complicates chronic pulmonary tuberculosis in about 40 per cent of cases. The lesions may take the form of shallow ulcerations, tumors (tuberculoma) structures or general thickening and distortion of the walls from peribronchial infection or pressure from enlarged lymphatic glands. The last few years have witnessed an increasing recognition of the value of bronchoscopy in the study and treatment of these

problems In obscure cases the primary diagnosis may be established by positive smears or cultures obtained through the bronchoscope in spite of repeatedly negative sputum studies The reason for the persistence of a positive sputum after an apparently successful collapse may be found in a bronchial ulceration Dr Bozer's case is one of stricture formation with secondary infection Universal experience indicates that tuberculous strictures do not respond satisfactorily to dilatation As a matter of fact, the progression to complete closure is nature's method of putting the diseased lung at rest, and no attempts, in my opinion, should be made to dilate such strictures except where the formation of secondary abscesses, as in Dr Bozer's case, necessitates drainage The persistence of supuration in spite of frequent dilatations at short intervals would, in my opinion, make surgical intervention the logical procedure in the case described

Dr John D Kernan, *New York City*—It is a great pleasure to discuss so clear and precise a paper The author considers first the taking of biopsies This is indeed an important procedure, as it confirms the diagnosis and often affords guidance for the treatment For it must be remembered that the tissue formation of a tumor gives a hint as to radiosensitivity and possibility of cure by x-ray treatment So we bronchoscopists like to make a high average of positive findings Nevertheless, unless there is a presenting tumor, it seems to me a biopsy should never be taken It is always dangerous to bite through intact mucous membrane Either hemorrhage or mediastinal emphysema may result, both dangerous conditions Another thing to be avoided is biting on an ulcerated spur Such a structure may appear just like a tumor, yet biting out a piece may be very dangerous

Often a diagnosis can be made just as surely in the case of a malignant tumor from its effect on the normal mobility of the bronchial tree as though a positive biopsy were secured And one should be content with this rather than submit the patient to danger

As to hemorrhage during bronchoscopy, it is by far the most dangerous complication that can occur If quiet is to be secured, the cough reflex must be more or less suppressed Thus if there is bleeding, the patient cannot clear his own lungs by coughing and may very well drown by his own blood filling his lungs before

the danger is realized It is probably best if bleeding starts during biopsy to keep in the bronchoscope and suck away the blood till the bleeding stops I think the essayist showed very good judgment in not attempting a biopsy in his second case

The author then discusses the question of bronchoscopy cases that are not ordinarily considered within the province or reach of bronchoscopic measures The point to be made here is that we do not yet know the limits of bronchoscopy Why should the rule not be to bronchoscope all obscure lung conditions? Surely we look in the nose, and ears, and throat and bladder in disease of those structures Why not the lungs also? And not only disease of the lungs calls for bronchoscopy, but all obscure disease of the mediastinum, for every structure in the mediastinum makes its impression on the trachea, bronchi, or esophagus The 2 cases which the essayist quotes illustrate very well the fact that the only sure way to tell about a bronchoscopy is to do it, and to judge by its effects All unresolved pneumonias, postoperative lung complications, and the like should be bronchoscope

A few years ago tuberculosis was considered a contraindication to bronchoscopy Now it is ordinarily done for diagnosis and treatment The rule should be, make the bronchoscopy part of the chest examination when the diagnosis is obscure or recovery from acute disease is not prompt

The second case well shows how unfortunate is delay That patient was in the hospital twentieth-six days without improvement The bronchoscopy brought immediate improvement It could have been done 3 weeks sooner with justification Let us make the classic indication for bronchoscopy failure of a lung condition to improve

I am glad the essayist has brought up tuberculosis This is indeed a great field for bronchoscopy that has not as yet been thoroughly cultivated

Now as to strictures Some are easily stretched because they do not involve the whole bronchial wall Where the involvement is deeper, the problem is harder I do not think mechanical methods are very efficient, and the trauma is severe Recently I have been using copper ionization, such as is used in the case of stricture of the urethra This appears to be a fairly efficient method

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If ever the human race is raised to its highest practicable level intellectually, morally, and

physically, the science of medicine will perform that service —René Descartes

# WILMS' TUMOR

## Report of a Case

JOHN H. SHELDON, M.D., F.A.C.S., and JOHN W. CANADAY, M.D., Glens Falls, New York

MIXED tumors of the kidney, while one of the most common malignancies of childhood, are sufficiently rare for us to feel justified in reporting the following case with autopsy findings. Mixer<sup>1</sup> reported 41 instances of renal neoplasm in 22,000 admissions to the surgical wards of the Boston Children's Hospital over a twenty-one-year period, and Dean and Pack<sup>2</sup> studied 16 cases of mixed tumor of the kidney occurring in 16,505 cases of malignant tumors accepted for diagnosis and treatment at the Memorial Hospital in New York.

Gardner,<sup>3</sup> in 1828, reported the first case of a renal sarcoma in an infant. In the following decades, there were numerous reports and descriptions of this tumor, but in 1880 Wilms published his monograph on mixed tumors of the kidney, and since that time this neoplasm has been called 'Wilms Tumor'. It is known also as embryonal adenosarcoma of the kidney and adenomyxosarcoma of the kidney.

## Case Report

J. D. white male, aged 10 months, was admitted to the hospital on May 4, 1937, because of marked enlargement of the abdomen and dyspnea. He had been well until five months of age when he developed bronchitis and a severe cough that continued with varying severity until admission. However his general condition remained good and he had gained normally.

Three weeks before admission, the parents had noted pouting of the umbilicus but had thought little of the abdominal enlargement which was also first noted at about this time. During the three weeks before admission, the abdomen had enlarged rapidly and the cough had become worse. During the week before admission, he had been irritable, had vomited occasionally and had developed anorexia.

Physical examination at admission disclosed a well-developed and well-nourished infant, very

pale, with a prominent abdomen. The skin was clear, eyes, ears, nose, and throat were negative. There was no lymphadenopathy. Respiration was rapid and shallow and the patient coughed frequently. The lungs were resonant to percussion throughout, but showed many medium moist râles and occasional asthmatic squeaks. The heart was normal. The prominent abdomen showed a small umbilical hernia and a large, firm, smooth, nontender mass extending from the left costal margin to the iliac crest and medially to the midline. No other masses or organs were felt. The genitalia were normal except for a left hydrocele.

Temperature on admission to the hospital was 101° F. Urinalysis revealed a clear urine, reaction acid, specific gravity, 1.014, albumin negative, sugar negative, sediment negative. Examination of the blood showed red blood cells, 3,800,000; hemoglobin, 42 per cent; white blood cells, 14,900 with 39.5 per cent polymorphonuclear neutrophils, 50.5 per cent small lymphocytes, 1 per cent eosinophils and 1 per cent basophils. The smear showed anisocytosis and poikilocytosis to be marked.

An intravenous urogram done the day before admission showed a normal right kidney pelvis shadow. On the left the large tumor could be outlined and at the upper and lower poles of the mass small collections of the dye were seen.

The patient's cough and dyspnea were relieved by steam inhalations and syrup of ipecac in small doses. On the third day the patient was given a transfusion of 120 cc. of citrated blood in preparation for operation.

Operation by Dr. Sheldon. Under ether anesthesia a long left rectus incision was made. Exploration showed no apparent metastases. The peritoneum along the outer side of the descending colon was divided and the intestine drawn medially. The kidney and tumor mass were then completely freed from their bed by blunt dissection and delivered thru the incision without undue difficulty. The pedicle of the kidney showed no evidence of metastasis grossly. The pedicle was clamped, cut and ligated as far from the kidney as possible. One Penrose drain was inserted through a stab wound into the large cavity left after removal of the tumor.



The patient left the operating room in fair condition and was given 300 cc of normal saline by hypodermoclysis and a transfusion of 160 cc of citrated blood. He was kept in an oxygen tent for three days because of the chest condition. Aside from troublesome abdominal distention and difficulty with mucus in the throat during the first two days, the convalescence was uneventful, and he was discharged from the hospital thirteen days after operation. At the time of discharge, his general condition was excellent.

Pathologic examination of the specimen removed at operation showed it to consist of kidney and tumor mass weighing 977 Gm and measuring 15 cm by 12.5 cm by 5 cm. Longitudinal section showed the kidney to be entirely replaced by the tumor mass, except for a small rim of kidney cortex measuring 1.5 cm in thickness. Gross appearance of the cut section of the tumor was that of thick bands of glistening white tissue with pinkish-gray areas between these bands. Microscopic examination was similar to that reported in the autopsy findings.

For six weeks after discharge, weekly follow-up examinations were negative. However, two months after discharge, a small mass about the size of a walnut was felt under the upper pole of the left rectus scar, and the right kidney was just palpable. He was then given six x-ray treatments over these areas, with no effect, and the left abdominal mass and the right kidney continued to grow very rapidly. His general condition remained good until three and a half months after operation. From this time on, cachexia became more and more marked, and the patient died on October 21, 1937, five and a half months after operation. During this time the urine remained negative, an interesting point in view of subsequent autopsy findings.

**Autopsy Report**—The body was that of a white male, 16 months of age, normally developed, very poorly nourished. External examination showed the body to be markedly emaciated, the abdomen large and protuberant with a well-healed left rectus scar, and the scrotum distended.

The pleural cavities, heart, and lungs were normal in appearance and their relationship to each other.

A small amount of ascitic fluid was present in the abdominal cavity. The liver, spleen, stomach, and intestines were normal. A large hard mass was

present in the right hypochondriac region, practically filling the entire right half of the abdomen. This mass was removed, and it appeared to contain the right kidney. The weight of this mass was 1,900 Gm, and it measured 24 cm by 17.5 cm by 13 cm. Longitudinal section showed that the entire kidney, except for one very small area, was replaced by tumor tissue. In the left kidney region was a large tumor mass weighing 1,500 Gm and measuring 25 cm by 16 cm by 15 cm. Longitudinal section of this tumor mass showed it to consist of neoplastic tissue probably arising from the kidney pedicle left at the previous nephrectomy.

A hydrocele was present in the scrotum. All other abdominal organs were normal in appearance.

Microscopic examination showed the remaining kidney tissue in the specimen removed at operation and the right kidney tumor removed at the autopsy to be essentially normal in appearance. The tumor tissue was composed of densely packed spindle cells and muscle cells, scattered embryonic renal tubules, and areas of loose connective tissue stroma. Within these areas of spindle and muscle cells, small acini or tubules were formed by malignant round cells that piled up about the lumen several layers deep. Mitoses in these cells were frequent.

**Diagnosis** Wilms' tumor

**W**ILMS' tumor is most commonly seen during the first five years of life, but cases have been reported of tumors of such size at birth as to cause dystocia, and Clay<sup>4</sup> reports a case in a patient 80 years of age. The two sexes are about equally represented in most reported series.

There is no unanimity of opinion as to the exact origin of these mixed tumors, but their genesis is explained on embryologic grounds. The four principal theories are that they originate from (1) aberrant germ plasm, (2) the Wolffian body, (3) the renal blastoma or nephrotome, and (4) endothelium. Excellent discussions of these theories are given by

Dean and Pack,<sup>2</sup> Kretschmer and Hibbs,<sup>3</sup> and Fraser.<sup>4</sup>

These tumor masses show marked variation in size and shape, but they are usually round to oval in shape and are usually enclosed in a heavy capsule that is continuous with the capsule of the kidney remnant. At either pole, or along the side, the remaining kidney tissue may be seen, separated from the tumor by bands of connective tissue. On cut section, they are usually grayish yellow or white in color and may be firm and fibrous or soft and gelatinous. There may, or may not, be cystic areas and areas of hemorrhage and of necrosis.

Microscopically, there is no typical picture, but a variety of cells found in varying proportions and formations. Smooth and striated muscle, elastic tissue, adipose tissue, myxomatous tissue, cartilage, and bone may be present in addition to the glandular elements. Irregularly shaped tubules and even abortive glomeruli may be seen. The kidney remnants show no invasion by the tumor and are normal in appearance, except for changes caused by pressure.

The tumor is usually confined to one side but occasionally is bilateral, as was the case in our patient. In these bilateral cases, the neoplasm may be primary in each kidney, or the second kidney may be involved by extension from the other side.

Wilms' tumors usually progress by extension to involve regional organs and tissues. Should the capsule rupture or should it be opened for biopsy, extension is very rapid. Metastases by way of the blood stream may take place and may involve the liver and lungs, or extension may follow the lymph channels. Rarely, metastases are found in bones.<sup>7</sup>

Patients with this condition are usually taken to a physician, because the parents have noted enlargement of the abdomen, or the abdominal tumor is discovered while the patient is being examined for some intercurrent disease. Fever is often present, but intermittent. Pain is a late symptom and is present only after

the weight of the tumor has become great enough to cause discomfort. Vomiting and constipation may be seen, due to pressure on the gastrointestinal tract. Hematuria is an infrequent sign and, if present, is intermittent. Secondary anemia is a usual finding but the child with an enormous tumor mass may be in remarkably good condition.

A rapidly growing large kidney tumor in a young child is probably a Wilms' tumor. Among the other intra abdominal masses to be considered in the differential diagnosis are hydronephrosis, polycystic kidney, and solitary cyst of the kidney. Urinalysis and intravenous urography or cystoscopy should differentiate these conditions. Splenic and hepatic enlargements can usually be excluded by blood studies and clinical symptoms. Tumors of the suprarenal glands may be difficult to differentiate unless attended by endocrine symptoms.

If the condition of the patient permits, nephrectomy by transperitoneal approach should be done. Because of the high degree of radiosensitivity of these tumors, operation may be facilitated by previous external radiation under which the tumor will diminish greatly in size. Operation should be performed as soon as regression has stopped. Intensive postoperative radiation is felt to be of value in prolonging life, and it has a definite place as a palliative measure for the treatment of recurrences and metastases.

As with any highly malignant tumor, the earlier the treatment is instituted, the better the prognosis. However, due to the 'silent' nature of Wilms' tumor, the disease has usually progressed too far for more than palliative measures before medical aid is sought. From various collected series, the combined mortality from operation and late recurrence is between 86 per cent and 93 per cent, with an immediate operative mortality of 24 per cent to 40 per cent.<sup>1</sup> Recurrence is rapid as a rule, usually developing within the first year after operation. Life is prolonged by operation and radiation—with an average expectancy of 10 to 18 months with both forms of

treatment, and 8 to 12 months with either form singly<sup>8</sup>

5 The prognosis is extremely poor

191 Glen Street

## Summary

1 A case of Wilms' tumor in a 10-month-old male infant is presented

2 Wilms' tumor is one of the most common malignancies of childhood

3 Enlargement of the abdomen is usually the first symptom

4 The treatment of choice is pre-operative irradiation, nephrectomy, and postoperative irradiation

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## FRIGHTENED PATIENTS

A warning against making remarks that may do more harm than good, by frightening the patient unduly, was uttered by a Boston physician of close to forty-nine years' practice in a paper read before the Section on Ophthalmology at the ninetieth annual session of the American Medical Association, St Louis, May 17, 1939, and now published in the *J A M A*, by Dr Allen Greenwood

"Many, many times," he says, "I have had a patient come into the office who had been unnecessarily frightened by a diagnosis of cataract. I have a drawing of the eye in my office showing the position and use of the crystalline lens and I use this to illustrate to the patient exactly what a cataract means so that he will not confuse a cataract with a possible tumor or cancer

"Some forty-five years ago an elderly woman came to see me and I casually mentioned that her very poor vision was due to beginning cataracts. She was terribly upset and nothing I could say seemed to relieve her. She went home, went to bed and in a few weeks passed away. Her family have always felt that my telling her of the beginning cataracts was the cause of her fatal illness

"It is certainly disturbing and usually requires several examinations when a patient comes in weeping copiously because someone has told her that a cataract was present in both eyes. Knowing the fear that patients have about cataracts, I seldom use the term until it becomes absolutely necessary or the patient insists on knowing the exact condition. I explain exactly what a cataract means if I have to use the term

"I usually tell patients who have a few specks in the lens or a slight incipient cataract that they have a few cloudy spots in the lens of the eye and that such conditions should be watched. All patients who have incipient cataracts should be seen frequently enough to detect the occurrence of some other ocular disease which might be amenable to treatment

"One can never tell what fears there may be in the mind of the patient besides those which he has expressed during the history taking. When

the examination is sufficiently advanced or when it is finished and the ophthalmologist is sure that the eyes are healthy and normal, a simple statement of this fact will often do away with unnecessary fear and anxiety

"Many times after I have assured a patient that there was no disease whatever in the eyes, that the vision was normal and that there was no indication of future trouble, the immense relief expressed has been very gratifying. The ophthalmologist does not need to be a psychologist to appreciate the wonderful effect of such encouragement. If, however, some chronic condition is found which is likely to progress, the ophthalmologist should be very careful not to discourage the patient

"No one can tell how long a patient is going to live, and no one can tell how rapidly a chronic disturbance may progress, so that all unfavorable prognoses should be refrained from so far as possible

"Some thirty years ago a woman was brought weeping into my office by a friend who stated that she had just been told by one of the oldest and best oculists that she would be wholly blind in two years. Examination showed bilateral choroiditis which had not destroyed the macula, and the patient had good central vision. The patient lived for twenty-five years and just prior to her death was still able to read newspaper print

"I mention this case to show how unwise it is ever to give such a discouraging prognosis. A good many instances similar to this have come under my observation

"I knew of a man who was told that he had optic atrophy accompanying tabes dorsalis and would shortly be blind. He purchased a revolver immediately, and one night when he got up and turned on an electric light which had burned out and found himself in total darkness he seized the revolver and killed himself

"It is better to be overoptimistic than to be unduly pessimistic. The woman mentioned, in after years, when she found that she was not going to be blind, was responsible for my seeing many prominent people"

# THE PROBLEM OF ANEMIA

## Some General Considerations

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FOLLOWING every important medical discovery and its subsequent universal acceptance, there appears a wave of enthusiasm that may serve to plunge us, unless a conservative restraint be exercised, into an abyss of carelessness. The work of Whipple, Minot, Murphy, Castle, Isaacs, Sturgis, Dameshek, Osgood, Jackson, and other investigators, so fired the imagination of many others that hematology became a so-called specialty almost overnight. Liver and liver extract, so effective in pernicious anemia and some allied anemias, such as pernicious anemia of pregnancy, sprue, and pellagra, began to be used in nearly all conditions in which there were found disturbances of the blood forming organs, even including those in which anemia was not a feature. Although it must be admitted that we have greatly increased our knowledge of hematologic disorders during the twelve years since pernicious anemia was removed from the category of fatal illnesses, we have, it seems, hardly scratched the surface of the knowledge that will eventually permit us to more accurately diagnose, and more effectively treat those conditions in which there are found abnormalities of the bone marrow, the reticuloendothelial system, and the circulating blood. Anemia is defined as any decrease in the amount of circulating hemoglobin, below the particular individual's normal level. With this hemoglobin decrease, there is usually an associated decrease in the number of red blood cells, although this is not invariably true since the red cell level may be within normal numerical numbers and the hemoglobin greatly reduced because of abnormally small cells, poor concentration of hemoglobin within these cells, or both

\* Aided by a grant from the Hendrick Research Fund of Syracuse University Medical College.

The blood counts in normal men vary between 4,800,000 and 6,400,000, with an average of 5,400,000, whereas healthy women have a range between 4,000,000 and 5,200,000, with an average of about 4,700,000. If the size of the erythrocytes is normal, and their hemoglobin concentration not reduced, there should be approximately 3 Gm. of hemoglobin for each million cells. Our experience in this regard, with reference to estimating the color index, leads us to suggest that one provide oneself with a simple hemoglobinometer that reads in grams (the Hellige, for example) and estimate the color index by dividing the hemoglobin obtained by three times the red count in millions. This simple procedure gives one the color index directly, and obviates the older percentage determination and the concern as to whether one's hemoglobinometer is gaged at 13 or 17 Gm. of hemoglobin as representing 100 per cent.

During recent years there have come into popular usage two classifications of anemia, one a clinical classification, and the other a classification based on laboratory studies. From the clinical standpoint, there are three types of anemia, based on etiology: (1) anemia due to loss of blood, from whatever cause, (2) anemia due to increased blood destruction—this includes the hemolytic anemias, irrespective of etiology, and (3) defective blood formation. Examples are pernicious anemia, the anemia of leukemia, dietary deficiencies, infections, and many others.

The laboratory classification of anemias is based on color index and hematocrit studies, the latter probably being the more accurate and informative. On the basis of the color index an anemia may be normochromic, hyperchromic, or hypochromic, depending on whether the

color index is normal (0.85 to 1.15), high (above 1.15), or low (below 0.85). If the anemias are to be classified on the basis of red cell size, we have the normocytic, macrocytic, and microcytic.

There are a multitude of factors concerned in the building of the hemoglobin molecule and their maturation and delivery to the circulating blood. Of these may be mentioned

- 1 Proper diet—this to include a sufficiency of calories, protein, iron, and vitamins, especially vitamin B<sub>1</sub>, B<sub>2</sub>, and C, as well as the "extrinsic" factor of Castle.

- 2 A normal gastrointestinal tract. Especially to be remembered are the secretion of HCl, Castle's "intrinsic" stomach substance, a healthy liver, and an intestinal tract that permits adequate absorption.

- 3 A functionally competent bone marrow.

If there is any serious defect in the diet, the gastrointestinal tract, or the bone marrow, irrespective of the cause, anemia may result. With these facts in mind, we return again to the old admonition that before one may hope to make a satisfactory study of a patient, one must first have a complete history and make a careful physical examination. The details of a person's diet should be carefully enumerated; inquiry must be made as to whether there has been any abnormal bleeding from any source, has the patient taken any drugs known to depress the bone marrow, or has he been exposed to benzol, radium, or x-rays, has he had any infections, acute or chronic, that might decrease appetite or depress marrow function, is there a history of jaundice, renal disease, gastrointestinal pathology, lowered metabolism, pains in the joints or bones, or symptoms suggesting disturbances of the nervous system?

In examining the patient, one should pay particular attention to the following: pallor, jaundice, petechial or ecchymotic spots, glossitis, abdominal and pelvic tenderness and masses, enlarged spleen, liver, and lymph nodes, tenderness over the bones, the presence of hemorrhoids,

and objective neurologic abnormalities.

Laboratory studies should include the routine examination of the blood, plus estimation of the volume index, reticulocyte count, icterus index, studies of the urine for urobilinogen, and examination of the stools for blood. In jaundiced cases the fragility tests should be performed. Gastric analysis is preferably made, and, in cases with definite gastrointestinal symptoms, x-rays of the intestinal tract taken. In occasional instances, x-ray studies of the bones are desirable, and in some cases biopsy of the sternal marrow gives valuable diagnostic information that could be obtained in no other manner.

The successful treatment of anemia in a specific case depends on a knowledge of the etiologic factors concerned, and a conservative appreciation of those therapeutic agents or procedures known to favorably influence specific types of anemia.

As a group, the macrocytic anemias are the ones in which liver extract is most effective. Addisonian pernicious anemia and the macrocytic anemia of pregnancy are outstanding examples of the efficiency of liver extract, and it is well known that these cases rarely require more than 3 cc of liver extract (derived from 100 Gm of liver) intramuscularly once a week. The macrocytic anemias of pellagra and sprue also respond to the intramuscular injections of liver extract, although much larger doses than are required in pernicious anemia are usually necessary. A history of dietary deficiency, possibly conditioned by chronic alcoholism, is invariably obtained in cases of sprue and pellagra, and a well-balanced diet is therefore essential. In addition to the liver extract injections, large doses of autolyzed yeast or Brewer's yeast by mouth are often of distinct benefit. Brewer's yeast should be given in iced milk, as much as 1 to 3 oz a day being the required dose. It must be appreciated that some cases of sprue and pellagra have an iron deficiency, with low color index anemia, and in such cases the addition of iron by mouth is indicated.

Patients showing a macrocytic anemia associated with serious liver pathology,

gastrointestinal malignancy, or leukemia will obviously not respond to any type of therapy

Hypochromic anemias (those with color indices below 0.85) occur with a great variety of conditions, especially in cases of dietary deficiency, chronic blood loss, chronic diarrheas, and in patients with achlorhydria or hypochlorhydria. It is therefore necessary to subject the patient to a thorough clinical investigation before a hopeful prognosis may be given. It is perhaps unfortunate that idiopathic hypochromic anemia, the type seen in women during the childbearing age, was described as a clinical entity, since identical blood pictures may be seen in other deficiency states (as for example in chronic hemorrhoidal bleeding in men, gross dietary deficiency, and in malignancy), especially if the neoplasm has bled for any length of time. In any case, if malignant growths and other serious diseases can be eliminated, and the bleeding and infection controlled, the anemia can be successfully treated with a full, well balanced diet, and iron by mouth. There are several satisfactory preparations used today, but we favor the use of ferrous sulfate in daily doses of 9 to 12 gr. This preparation is as effective as 90 gr. of iron and ammonium citrate daily, and does not cause gastrointestinal symptoms. In our opinion, iron by injection is never justified, for as Heath has demonstrated, parenteral iron, sufficient to favorably influence a low color index anemia, will produce toxic symptoms. The role of copper as an adjunct to iron has been much debated, but it seems clear that the administration of copper is never necessary for the low color index anemias of adults.

The diagnosis and treatment of patients with anemia due to increased blood destruction offer a somewhat difficult problem. Increased blood destruction occurs in a variety of clinical conditions, among which may be mentioned hemolytic jaundice of the congenital or acquired type, severe infections, intoxications due to sulfanilamide, lead, phenylhydrazine, potassium chlorate, acetanilid, anilin,

nitrobenzol, and trinitrotoluol, as well as in occasional cases of Hodgkin's disease and myeloid leukemia. The history is therefore most important, especially the family history and the story of exposure to agents known to cause increased blood destruction. The examiner should note the degree of jaundice and search for enlarged glands and spleen. Laboratory studies should include estimation of the icterus index, Vandenburg test, urine tests for urobilinogen, reticulocyte count, and estimation of the erythrocyte fragility. In case of suspected lead poisoning, the urine should be tested for lead and a search made for stippled red blood cells. The treatment of hemolytic anemia, with the exception of familial hemolytic jaundice, is to treat the underlying cause. Transfusions in such cases may tide the patient over a critical period and, in the case of lead poisoning, the accepted treatments and cautious deleading may be of aid. Specific antianemic drugs are, on the whole, of little value in the acquired hemolytic anemias. For the acquired type of hemolytic jaundice, transfusions are advisable if the anemia is severe, as the result of frequent or severe hemolytic crises, but splenectomy is not advised for this type of patient. For the familial type of hemolytic jaundice, no specific treatment is necessary in the mild cases, at least for those who are, as has been aptly said, "more jaundiced than sick." If the anemia is severe, the hemolytic crises frequent, and the disease a real menace to health and life, splenectomy offers the best hope of cure, although it has been demonstrated that intramuscular liver extract may be helpful in some instances.

The remaining anemias, those due to defective blood formation, from whatever cause, comprise a large miscellaneous group, often badly treated. Of these, however, may be mentioned the anemias of hypothyroidism and scurvy, which usually disappear after adequate treatment with desiccated thyroid substance and vitamin C, respectively.

The question often arises as to whether or not an anemic patient should be treated by blood transfusion. It is of

some importance to recall that the chief value of transfusion is its immediate effect in increasing blood volume, hemoglobin concentration, platelets, or other factors concerned in blood coagulation, and in increasing the plasma protein in certain types of edema. Because of its immediate effect, transfusion may be of life-saving benefit. On the other hand, it may be merely an expensive and clumsy method of securing a beneficial effect. Blood transfusions are not usually indicated in anemias known to respond to specific therapy, such as pernicious anemia and idiopathic hypochromic anemia, unless the clinical signs of severe oxygen want are present. Given at complete bed rest, a restless patient with extreme weakness, some orthopnea, and slight cyanosis, and one who has râles at the lung bases, one may be certain that the hemoglobin concentration is probably not sufficient to permit adequate gas exchange in the tissues, and circulatory collapse may supervene. In such cases, with the systolic blood pressure at 70 mm or less, a hemoglobin of less than 30 per cent, and a rising pulse rate, one or more transfusions are urgently indicated. One occasionally hears the erroneous statement that a transfusion should be given to "stimulate the bone marrow." It has been shown that transfused blood cells may persist in circulation for from thirty to over 100 days, and that unless hemoglobin is freed as the result of an undesirable transfusion reaction, substances for hemoglobin regeneration do not become rapidly available. If surgery is considered undesirable because of anemia, transfusions may provide a safer blood level. Occasionally one sees patients suspected of having a fatal blood condition, and in such instances transfusions may well be

used, at least until all possible diagnostic doubt has been dispelled. A strikingly beneficial effect of transfusion is noted in the hemorrhagic diseases, as in hemorrhagic purpura, hemophilia, and hemorrhagic diseases of the newborn. In the temporary treatment of bone marrow depression due to chemical poisons, such as benzol, transfusions are especially valuable because of the possibility of tiding the patient over the critical period until spontaneous regeneration may take place. In fatal bone marrow depressions, as in leukemia or aplastic anemia, distressing oozing of blood from the mucous membrane may be controlled by judiciously given transfusions, although it is indeed doubtful if the patient's life will be prolonged by the procedure.

### Summary

1 Patients with anemia should be regarded as suffering with secondary disturbances of the blood-forming organs. All anemias are secondary, in the sense that they may be brought about by a multitude of primary factors.

2 The proper study of an anemic case requires a thorough clinical investigation.

3 Diagnoses as to etiology are not made from a blood smear, or from any other laboratory test, but from a proper evaluation of all the diagnostic data.

4 As to treatment, we have only a few specific therapeutic agents of proved value. A knowledge of these, including their indications, doses, and limitations, will aid to discourage the use of the "shot-gun cure-alls" emanating from the pharmaceutical houses. The prevalent use of these latter preparations might suggest that some of us are either unfamiliar with our subject, or are failing to practice an intelligent skepticism, or both.

### CANCER NOT TRANSMISSIBLE

There is no possibility and hence no danger of the transferring of cancer from cancerous cattle to human beings through eating meat from such animals, *The Journal of the American Medical*

*Association* for April 15 says. Cancer is not transmissible, even by transplantation, from one mammalian species to another, e.g., from cattle to man. Human cancer is not contagious.

# COARCTATION OF THE AORTA

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**C**OARCTATION of the aorta is a congenital defect of the aortic arch, distal to the origin of the left subclavian artery, this defect compromises the lumen of this vessel at times to the point of complete occlusion. As far as can be determined, the terms stenosis and "atresia" applied to the isthmus of the aorta, are used synonymously with the term "coarctation of the aorta." Bonnet<sup>1</sup> chose to classify the various types of coarctation in two groups, in infantile and adult, according to the site and form of the stenosis.

The degree of constriction observed varies from one case to another. In some instances the aorta appears as if it were ligated, and its lumen is completely obliterated, in others, the constriction and occlusion are less complete. The aorta is usually dilated proximal to the region of coarctation, but distal to this region, the aorta becomes normal or nearly normal in size. Thus, the aorta assumes an hourglass appearance.

Various ideas concerning the etiology of this anomaly have been proposed by many authors during the past century. The first attempt to describe it was made by Reynaud,<sup>2</sup> in 1828, who considered the anomaly to be the result of persistence of a fetal condition that was in some way influenced by the process of evolution of the ductus arteriosus. Craigie,<sup>3</sup> in 1841, stated that the defect represents a continuation of the normal obliteration of the ductus arteriosus. Rokitsky,<sup>4</sup> in 1852, supported the view that it was essentially a developmental defect which occurred in embryonic development. In 1887, Loriga,<sup>5</sup> in agreement with Rokitsky, stated that the defect was entirely independent of the

process of occlusion of the ductus arteriosus and that it could be traced back to intrauterine life. It would seem, as Loriga remarked, that the abnormality develops in the descending link of the primitive aorta which unites the fourth left aortic arch with the fifth and sixth arches on the same side. Abbott<sup>6</sup> reported a case in which genesis of the defect is explained on the basis of the above theory.

Bonnet stated that a constriction that lies proximal to the point of junction of the aorta and ductus arteriosus is the result of persistence of intrauterine relations and is not compatible with life. He also postulated that a constriction that lies distal to the junction of the ductus arteriosus and the aorta, results from extension of the obliterative process active in the ductus arteriosus at the time of its closure. The latter form of coarctation, according to Bonnet, has no ill effect on the well being of the patient, except that it is frequently the seat of inflammatory change.

Syphilis also has been suggested as a factor in the etiology of this lesion, but evidence for this hypothesis is lacking.

The infantile type of coarctation, the first group in Bonnet's classification, occurs in the fetus, the stillborn, and in infants. The first subdivision of this type consists of a diffuse narrowing of the aortic isthmus and may represent persistence of the fetal caliber of the vessel, that is, the vessel fails to develop to meet the increasing circulatory requirements of the body. This type of coarctation is usually associated with major cardiac anomalies. The second subdivision of the infantile type is an absence or an atresia of the isthmus. Thus, the aorta ends beyond the left sub-

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clavian artery, and the ductus arteriosus, in this case, continues from the pulmonary artery to join the descending aorta. This type of coarctation represents lack of development of the segment of the fourth brachial arch which corresponds to the aortic isthmus. In this type, usually, collateral circulation has not developed.

The adult type includes those cases in which the anomaly is seen in the adolescent or mature patient and in which the coarctation consists of an abrupt constriction of the aorta at, or near, and often slightly distal to, the ductus arteriosus.

The pathologic lesions in coarctation of the aorta are encountered both at the immediate site of and remote from the point of coarctation. Microscopically, little is seen except connective tissue in the stenotic or atretic vessel. Involvement in the occluded portion may include all coats of the aorta or may be limited to the inner coats. The thorough studies made in the cases in which rupture of the aorta occurred have contributed interesting facts. In some cases, no gross or histologic changes could be detected, in others, diminution of the elastic tissue and regeneration of fibrous tissue are observed, while in others, focal degeneration of the elastic lamina occurs. The last change has been more or less generally accepted as the forerunner of rupture. Cardiac hypertrophy with marked collateral circulation was observed in 75 per cent of the adults of this series. In the infantile type, there is usually neither cardiac hypertrophy nor marked collateral circulation, because children die before there is an opportunity for such conditions to develop. Bicuspid aortic valves are frequently seen (25 per cent) accompanying coarctation. The ductus arteriosus is closed in about a fifth of the cases or less

### Diagnosis

Again the classification of Bonnet simplifies the discussion. The diagnosis of the infantile type of coarctation is usually made at necropsy, but cases in

which the diagnosis in life has been made mistakenly are encountered. The adult type of coarctation seems to be associated with a definite clinical symptom complex, vascular rather than cardiac, which, if present, warrants the diagnosis of coarctation of the aorta.

The patients have been described as robust, sthenic young individuals who have well-developed musculature. Their intelligence is usually above the average. There may be symptoms of anoxemia in the lower extremities, also pain, numbness, and intermittent claudication have been recorded. In some instances, the major complaints are similar to those of a patient with hypertension—such as precordial pain, oppression, dyspnea, headache, nausea, vertigo, and tinnitus. Frequently, the patient, when first seen, complains of the classic signs and symptoms of congestive heart failure. The associated cardiovascular anomalies may give rise to serious complications. Of primary importance in this group is the ruptured cerebral aneurysm that is associated with symptoms of central cerebral lesions—such as those of vascular accidents, hemorrhage, thrombosis, or embolism. Baker and Shelden<sup>7</sup> reported from the Mayo Clinic a case exemplifying such symptoms. In their report they stated that less than 350 cases of coarctation of the aorta have been recorded and that less than 25 per cent of these were diagnosed by clinical means. Epistaxis is frequently recorded.

In contrast with the above picture, there are patients who have an extreme degree of coarctation of the aorta without symptoms, and their collateral circulation is so efficient that death occurs from some intercurrent infection rather than as a result of the presence of the anomaly. The anomaly is recognized if necropsy is performed, otherwise, its presence is never suspected.

### Physical Findings

The physical findings seem to bear little or no relation to the severity of the lesion or to the amount of collateral circulation that exists. Paradoxically, the

# THE VALUE AND USE OF URINARY ANTISEPTICS

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AS THESE drugs are used by all practitioners of medicine and because there has been so much renewed interest in them since the discovery of mandelic acid and sulfanilamide, it was thought that a general consideration of the subject might be of interest to this gathering.

First, it is well to bear in mind the limitations, and just what one may expect to accomplish with these substances.

To date, no universal antiseptic has been discovered that will disinfect the urine, regardless of the type of invading organism. To complicate the picture further, certain strains of given bacteria may be very susceptible to a given antiseptic, while other strains are not.

If the infection is in one or both kidneys, another most important factor is the degree of renal function still present in the diseased kidney, as it is obvious that one that is functionless cannot secrete the antiseptic, which will be eliminated entirely by the sound side where it is not needed. In such a case the only possible effect the antiseptic can have is to help check the infection in the urethra, bladder, and, in the male, in the prostate and vesicles. Naturally these structures are constantly reinfected as long as the diseased kidney remains.

A determination of renal function is therefore necessary if antiseptics are to be used to the greatest advantage in kidney infections.

Should the infection be bilateral and the function of both kidneys poor, the drug will be retained in the blood stream, with the likelihood of poisoning. If acidifiers are also administered acidosis will occur, thus further damaging the patient. Indeed the combination of the two may create a condition more serious than the one for which the therapy was instituted.

From the foregoing it is readily appreciated that the better the renal function, the more effective will be the action of the antiseptic.

When the infection originates in the bladder, urethra, prostate, or vesicles and the kidney function is unimpaired, and there is also free urinary drainage, antiseptics will be of great value. The importance of good urinary drainage can not be overemphasized, and this applies to renal infections as well.

Walther's recent paper on urinary antiseptics will be freely quoted. The drugs studied will be enumerated, indicating the particular bacteria that are most affected, the reaction of the urine necessary, the dosage, and whether it is necessary to restrict fluids or not. Usually where fluids are not restricted the antiseptic is so diluted that its effect is largely nullified, and as fluids should never be restricted in acutely ill patients, antiseptics will find their largest field of usefulness in subacute and chronic infections with but few exceptions, to be mentioned later.

From the list of Walther's, it is apparent that to know the organism and its particular strain is of great value in selecting the particular drug to use. If this cannot be done, the trial and error method of the past will have to be followed, in which case, Walther's rule, "If after a week's time the infection does not respond to the antiseptic being used it should be discontinued and another tried," is an excellent one.

The following antiseptics are thought to be effective in all types of infections. Let us discuss them in the order named.

1 Time-honored methenamine. Hinman is of the opinion that the drug is non-irritating in large doses, and must be so given. The urine, in addition, must be made highly acid by acidifiers and the fluid intake sharply restricted. Finally,

TABLE 1 —SELECTIVITY OF ANTISEPTICS AND THEIR USE

Drug	Organism	Fluid	Reaction of Urine	Dose
Oil of sandalwood	Staphylococcus Gonococcus	Unlimited	Any	0 60
Methenamine	Any	Limited	Acid pH 5 or lower	2 00
Methylene blue	Staphylococcus Tubercle Bacillus	Limited	Acid	0 2
Neutral acriflavin	Any	Limited	Alkaline	0 03
Pyridium-mallophene- serenium-niazo-ambazin	Any	Unlimited	Any	0 00 0 1
Hexylresorcinol (caprokol)	Staphylococcus Pyocyanus	Limited	Any	0 1 0 1 0 2
Neosarsphenamine	Staphylococcus	Unlimited	Any	0 03
Mandelic acid (Helmholtz)	Escherichia coli Aerobacter aerogenes Staphylococcus aureus Streptococcus faecalis or enterococcus	Limited	Acid pH 5 2 or lower	3 0
Sulfanilamide	Streptococcus hemolyticus Escherichia coli Aerobacter aerogenes Proteus group Staphylococcus aureus Pseudomonas group Gonococcus	Unlimited	Alkaline pH 7 5	Helmholtz Infancy 0 3-0 6 2-4 years 0 65-1 8-12 years 1 3-2  Adults (Cook Butcher) 1st day 2 2nd day 2 00 3rd day 4 4th day 2 60

Hinman feels that methenamine is more useful in preventing infection than in curing one after it has developed

The writer cannot agree with Hinman's claim that methenamine is nonirritating, as he has seen marked irritation with, at times, hematuria following its administration

2 Neutral acriflavin is practically always given in enteric coated tablets because of its irritating effects upon the stomach. Whether these tablets are absorbed regularly because of the coating on them is a question, although in the last month or so at least one drug firm has stated that a new process in manufacture has overcome this difficulty. This drug is effective regardless of diet or the amount of fluid ingested. The urine should be alkaline.

3 The azo dye group, particularly pyridium, is believed to have the advantage of penetrating the infected tissues and thus making the antiseptic action more than a surface one. No diet or fluid restrictions are necessary and these dyes are effective in an acid or alkaline urine. Walther feels they are about 50 per cent effective, particularly pyridium.

Commenting on the individual members of this group, observers have found (1) pyridium shows the best results in renal and prostatic infections, (2) serenium in gonorrhea, salpingitis, cystitis,

and pyelitis, (3) niazo in bladder spasm and acute posterior urethritis, and (4) mallophene and ambazin do not upset the stomach. The latter does not stain clothing or bedding.

The remaining antiseptics in Walther's list are definitely selective, and indifferent results usually follow if the organism is unknown. Fortunately, mandelic acid and sulfanilamide unfavorably affect quite a number of organisms commonly present in urinary infections.

Two infections that have been the *bête noire* of urologists for years are *B. proteus* and *enterococcus* (*Streptococcus faecalis*). However, *B. proteus* is affected by sulfanilamide, and *enterococcus* by mandelic acid.

Another type of infection that has failed to respond to any form of therapy in the writer's hands is that due to the presence of urea-splitting organisms in cases of renal calculi. Here again the question of renal function comes in. As the function is usually low, no antiseptic can be effectively secreted by the affected kidney. Ritter, in the *American Journal of Surgery*, of March, 1938, has found the same thing true as long as the kidney harbors the stone.

Another renal infection that is quite rare, is amicrobic pyuria, usually mistaken for tuberculosis. This condition was first described by Faltin in Scandi-

navia in 1909, and referred to by Hans Wildbolz in 1933 Solderlund and Ruenberg describe two types

1 Secondary amicrobic pyuria, representing a terminal stage of urinary infection due to *B. Coli*, staphylococcus, streptococcus, or gonococcus This is not rare and is easily diagnosed from the history of a previous infection, usually associated with chills, fever, and bacteria in the urine. Solderlund and Ruenberg have successfully cured the remaining pyuria by lavaging the structure involved a few times with the usual antiseptics

2 Primary amicrobic pyuria, in which the cause is not clear The patient is nearly always a young male who suddenly develops urgency, dysuria, pyuria and in the writer's experience, hematuria The urine contains sterile pus on smear and culture. Seen through the cystoscope the bladder mucosa is covered with mucopus, is injected, and has areas of petechial hemorrhage. The urine from both kidneys contains pus, as both are nearly always involved The function is little reduced. Fever and other constitutional symptoms are conspicuous by their absence. The prostate and vesicles may be mildly involved. Epididymitis does not occur The Wassermann, tuberculin test, and guinea pig are all negative. Wildbolz states that a few injections of 0.015 Gm of neosalvarsan have promptly effected a cure. It is well to remember this infection, as nearly all of us regard a sterile pyuria as tubercular until proved to the contrary One point may help, which is that tuberculosis rarely has a sudden onset.

Where the organism and its strain have been identified, the following antiseptics are indicated at the present state of our knowledge

*Mandelic acid*, assisted by acidifiers and restricted fluids in the *B. Coli* group except *B. proteus* Enterococcus (*Streptococcus faecalis*)

*Sulfanilamide*, without restricted fluids or diet and in a urine which has been rendered alkaline in *B. hemolytic streptococcus* (not *Streptococcus viridans*), *B. proteus*, and gonococcus.

TABLE 2

I	Streptococcus group	
A	Streptococcus	B Enterococcus
1	Hemolyticus—Beta-hemolysis	
2	Viridans—Alpha-hemolysis	
3	Nonhemolyticus—Gamma-hemolysis	
	Enterococci are relatively more resistant toward heat and chemicals than the other streptococci	
II	Staphylococcus group	
A	Hemolyticus	B Nonhemolyticus
1	Aureus Usually pathogenic	Occasionally pathogenic
2	Albus Occasionally pathogenic	Usually nonpathogenic
	This group as a whole is at times difficult to differentiate as to the degree of pathogenicity. More reliable tests are being introduced at present.	
III	Escherichia	B Coli heterogeneous group
IV	Aerogenes group This group closely resembles the Friedlander bacillus.	
V	Eberthella and Salmonella group	Members of these groups may be found in the urine in typhoid and paratyphoid infections respectively
VI	Shigella group	Flexner dysentery bacillus and the closely related bacterium alkalescens may be found in urinary tract infections
VII	Proteus group	A motile gram negative bacillus.
VIII	Pseudomonas	<i>B. pyocyaneus</i> , a motile pigment producing bacillus.

*Neosalvarsan*, 0.03 Gm, without restricted fluids or diet in staphylococcus infections

From this brief outline, it is apparent that there is much more to learn about urinary antiseptics Undoubtedly the near future will see many more new ones Whether the universal nontoxic antiseptic will be among them only time and experience can determine

Autogenous vaccines though not antiseptics have a definite use in properly selected cases The writer has had a long and generally favorable experience with these substances

Bacteriophage has not been used sufficiently to venture an opinion

### Summary

1 To rationally treat infection in the urinary tract, a proper diagnosis is necessary, which can in the majority of instances only be arrived at by a complete urologic study Not to take advantage of this is often to waste time carrying out useless treatment

2 Free drainage of the affected part is more important than antiseptics The writer wishes to call attention to the ureteral catheter as a useful adjunct for this purpose

3 Urinary antiseptics can only be

effective when the affected kidney still possesses good function. If both organs are infected and function poor, serious results may occur from retained antiseptics and acidifying drugs in the blood stream.

4 Urinary antiseptics 'that call for restricted fluids to enhance their action are contraindicated in acute infections. Others may be used. However, if fluids are pushed, as they should be, the antiseptic, except sulfanilamide, may be so

diluted that the effectiveness is for the most part lost.

5 The universally effective antiseptic remains to be discovered.

6 It must not be inferred from these remarks that antiseptics are of little value. Quite the contrary, if a correct diagnosis has been made, free urinary drainage established, and the antiseptic employed selected intelligently, much good will result.

40 North Street

### "ACIDOSIS" ADVERTISING MEETS AN ACID TEST

The "acid test" has been applied to the wild, if picturesque, advertising claims that almost all human ills are due to acidosis, and the claims got the worst of it, and are to appear in print no more. According to the *J A M A*, the Federal Trade Commission, on August 6, entered into a "cease and desist" stipulation with the makers of "Alka-Seltzer," by which they are to stop making misleading representations.

"Now the respondent company agrees 'to cease the use of advertising matter implying that colds, neuralgia, distress after meals, and "common everyday ailments" result from excess acidity of the blood, an acid condition of the blood, or deficient alkaline reserve of the blood, and that alkalinizing effect of "Alka-Seltzer," by correcting such acid condition or restoring the alkaline reserve, will be a proper treatment for the ailments mentioned'.

"The respondent further agreed 'to discontinue representations implying that headaches, upset stomach, and aches and pains result from, or are associated with, excess acidity of the blood, an acid condition of the blood, or a deficiency in the alkaline reserve of the blood, except when the ailments mentioned may be shown by competent scientific evidence to be directly associated with such conditions of the blood, and subject to this

exception, to cease making representations implying that the taking of "Alka-Seltzer," by correcting the acid condition of the blood or restoring its alkaline reserve, will be a proper treatment for such ailments'.

"The respondent also stipulated 'that it would cease representing that other therapeutic effects of "Alka-Seltzer" exceed the recognized benefits to be derived from neutralization of hyperacidity of the gastric contents or the analgesic and other effects of sodium acetyl-salicylate, together with action of buffer salts'.

"According to an examination of the product in 1932, persons who follow the directions to dissolve 2 tablets of Alka-Seltzer in a glass of water get nearly 9 gr. of aspirin and nearly 1 gr. of salicylic acid with their mixture of citric acid and baking soda. Those who do as suggested and take sixteen such tablets a day get over 70 gr. of aspirin and 6 gr. of salicylic acid in twenty-four hours. Whether or not the formula has been changed since that time is not known.

"It will be interesting to see what the Miles Laboratories, Inc., find to talk about now that the government has told them what they cannot say. Perhaps they will decide to tell the people that what they are offering is essentially an effervescent tablet of aspirin."

### CATARACTS DUE FOR A FALL

Within the next few years all cataracts may be prevented, Dr Arthur M Yudkin told ophthalmologists meeting at Strong Memorial Hospital in Rochester recently.

The secret of the cause of one of the oldest and most tragic eye disorders known to medical science is slowly but surely revealing itself, the head of the Yale University Clinic told fellow specialists.

Today modern physiologic chemistry has discovered that galactose and related substances,

combined with vitamin deficiency, produce cataracts.

Cataracts have blighted the lives of man and beast throughout the ages, and have never responded to medical treatment up to now, Dr Yudkin said.

"If we can be sure of the cause of a disease, the chances of preventing its occurrence rise immeasurably," Dr Yudkin reminded his listeners, attending a summer graduate course in ophthalmology sponsored by University of Rochester.

# THE BULGARIAN BELLADONNA TREATMENT OF CHRONIC ENCEPHALITIS

## Preliminary Report

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(Executive Secretary The William J Matheson Commission for Encephalitis Research New York City)

THE purpose of this short report is to give a summary of the experiences of the Matheson Commission for Encephalitis Research over a period of thirteen months in treating cases of chronic encephalitis with preparations of Bulgarian belladonna root. This method of treating chronic encephalitis was begun on a small scale in Bulgaria about seven or eight years ago, largely through the efforts of Ivan Raef. In 1934, Her Majesty Queen Elena of Italy established clinics throughout Italy under the direction of Panegrossi. This form of medication was shortly thereafter adopted in clinics and hospitals in various European countries. During the past two years, considerable work has been done in England, the investigation in that country started by Neuwahl. Up to the present time, there has been no publication dealing with this subject in the United States, but an excellent article by Fabing is to be published by the *Ohio State Medical Journal*.

We have used in our study a white wine extract of the root of Bulgarian belladonna and also tablets prepared from this extract, both of these furnished by Lederle Laboratories. Different lots of the extract average about 2.3 decimilligrams of total alkaloids per cc., the tablets 3.1 to 3.5. We have also used tablets imported from Bulgaria by Dr Ivan Robev, called "Bellabulgara," with an alkaloidal content of 4 decimilligrams. These tablets were standardized by Dr Robev.

We have treated a total of 75 patients, all of them chronic cases of many years' standing. With two or three exceptions, these patients were all definitely suffering from chronic encephalitis, and in

most instances they had been in that stage for ten years or more. In the two or three exceptions noted above, there was in one instance a question as to whether or not the Parkinsonism was on an arteriosclerotic or encephalitic basis. In two, there was an outstanding psychogenic factor.

Most of these patients had previously tried other forms of symptomatic treatment, such as hyoscine, stramonium, atropine, or benzedrine, or a combination of these. A little difficulty was sometimes encountered in transferring a patient from large doses of hyoscine or atropine to a proper dose of the Bulgarian preparation. Our patients continued to live in the same environment and under the same conditions as they previously had. They took no other drugs. No special diet was advised. It was recommended that they abstain from alcoholic beverages which, as a matter of fact, most patients with encephalitis tolerate badly, regardless of the treatment they are taking.

The patients varied very widely in the dosage that was necessary to bring about improvement. We usually started a patient on a dose of 2 cc. of the decoction, or 1 tablet, taken just before retiring. This dosage was increased daily by 1 cc. of the decoction, or by 1 tablet, until there was rather marked dryness of the mouth or blurring of vision. We tried to avoid increasing the dose to the point where there was dizziness, headache, diarrhea, or difficulty in urination. Difficulty in urination did present itself as a problem in two or three elderly men with enlarged prostates. It was impossible to say how much of this was due to the medication and how much to the natural

progression of the prostatitis. None of our patients showed mental confusion.

The optimum dose varied between a minimum of 4 to 8 cc of the decoction (or the equivalent of the alkaloidal content in tablet form) and a maximum of 30 to 50 cc of the decoction. Some patients prefer taking the entire dose just before retiring, others prefer to take the total dosage divided into two, three, or four doses. Until the optimum dose is established, it is most important that these patients be under close medical supervision and under frequent medical observation thereafter.

In general, the decoction and the tablets were equally effective. The following table shows a summary of the results.

TABLE 1—SUMMARY OF RESULTS WITH BULGARIAN TREATMENT

Previous Condition	No	Slightly Improved		Moderately Improved		Greatly Improved	
		%		%		%	
Moderately severe	22	5	6.67	9	12.00	8	10.67
Very severe	53	12	16.00	27	36.00	14	18.00
Total	75	17	22.67	36	48.00	22	29.33

The length of this article does not permit a detailed discussion of the improvement in individual patients. Practically all of the patients showed subjective improvement. They felt stronger. There was less drowsiness during the daytime. They rested better at night. There was less feeling of tension. They were more cheerful and less given to fits of depression.

Objectively, there was to a greater or less extent relaxation of the muscle rigidity. This was shown in an improved facial expression, greater ease in rising

from a sitting position, a more normal gait, and improvement in speech. In practically all cases salivation was entirely relieved. The profuse perspiration from which a few patients suffered also was markedly diminished. While as a rule tremor was not so much improved as was the rigidity, nevertheless 2 patients with marked coarse generalized tremors that had persisted for years became practically free from tremor except during periods of excitement. The effect on oculogyric crises was not so marked. While the crises usually became less frequent, less severe, and shorter in duration, in no instance in this group have they been completely abolished. One case of narcolepsy following encephalitis, of many years' duration, has been markedly improved in a short time, although the results with ephedrine and benzedrine were highly unsatisfactory.

Conclusion

After an intensive study during the past ten years of many cases of chronic encephalitis treated by various symptomatic measures, I have no hesitation in stating that the Bulgarian treatment (decoction or tablets) is by far the most effective method of therapy.

. . .

I wish to thank the Lederle Laboratories for furnishing us with the white wine extract of the Bulgarian root and also tablets prepared from this extract. I also wish to thank Dr. Ivan Robev for supplying us with a large number of tablets "Bellabulgara."

DIABETICS MOBILIZE

From California comes news of the formation of the "Diabetic Society of America." Dedicated to the proposition that "it is vital to be under medical treatment at all times," the new organization is already planning a comprehensive program. Among other things, according to Secretary Henry Adams, of San Francisco, it will purchase insulin for the "diabetically indi-

gent", found and aid diabetic children's camps, convalescent homes, clinics, and diet kitchens; investigate alleged remedies, fight employers' prejudices, identify members with cards to help them obtain emergency attention, demand accident, health, and life insurance at lower rates, arrange for special accommodation on airlines, railroads, steamships, resorts, and hotels.

## BRACELET DERMATITIS

OSCAR L. LEVIN, M D, and HOWARD T. BEHRMAN, M D, New York City

IT IS evident that the following case is an excellent example of dermatitis where we have direct evidence of the external causative agent. The form of affection described is allied to many other typical cases of skin eruption caused by carrying metal watch cases, wearing leather hat bands, and otherwise coming in contact with a substance for which under certain conditions the patient has a marked sensitivity. In such cases after treatment and removal of the irritating factor, the dermatitis effectively disappears.

### Case Report

Y P female, aged 20 unmarried was referred for diagnosis and treatment on August 24 1936.

The history indicated that five days prior to her first visit she had noticed square red spots on the front of the right forearm. The next day on arising she noticed that the spots had spread around the forearm to coalesce and to form an inflamed swollen eruption. It encircled the arm in the form of a band and the involved skin corresponded exactly to that which was covered with a wooden bracelet that she had worn. The bracelet had been purchased at a department store several weeks previously but had not been used continuously until six days before the initial appearance of the eruption. The red elevated band measured  $3\frac{1}{2}$  cm in width, while the bracelet measured  $2\frac{1}{4}$  cm indicating that the skin reaction showed a tendency to peripheral spreading. A diagnosis of dermatitis venenata was made.

Scrapings from the surface contiguous to the skin and from sections within the bracelet were employed for the performance of patch tests. Twenty four hours later the tested areas were examined and it was found that both were red and swollen. The patient was then asked to wear the bracelet on the left forearm and if she noticed any itching or inflammation, to stop the use of the bracelet immediately and return to the office for further examination.

At the end of two days she was compelled to return to the office because of the appearance of inflammation and marked itching. The area on the left forearm where the bracelet had been

worn proved upon examination to be red swollen and studded with numerous papules. In addition the areas where patch tests had been performed were more inflamed and gave evidence of increased erythema and papule formation. The patient was advised not to resume wearing the bracelet and treatment was begun. Frequent applications of a soothing alkaline liniment and exposure to fractional doses of x ray were ordered. Coincidentally calcium lactate and reduced iron were administered internally.

After four days the patient returned and when examined the inflamed area on the left forearm appeared brownish and slightly scaly while the tested areas were still acutely inflamed. After four more days the patch test area seemed to be more irregular and vesicular and on the left forearm proximal to the zone where the bracelet had been worn for testing purposes there was an irregular area exhibiting erythema with papulovesicular lesions that measured 5 cm in diameter. When seen again at the end of one week all the lesions showed a tendency to involution and were represented by fading erythema, slightly brownish pigmentation and superficial scaling. The patient returned two weeks later and all evidences of the inflammatory reaction had disappeared except for a negligible tannish pigmentation.

### Comment

Today, for the first time in many years women are embellishing their arms, not with one bracelet, but with many bracelets, and their necks with heavy metal necklaces, and their ankles with encircling chains. Various materials are employed in fashioning this jewelry. Leather straps are common on wrist watches. Silver, gold, copper, and plated materials containing brass and nickel are employed in the manufacture of these objects. In addition, horn and composition materials, plastics, including catalin and bakelite are being drafted to simulate the more precious substances and woods are used to create new style effects, definitely modern. All of these materials, under specified conditions, are capable of



causing irritations of the skin, but our special interest is with wood, particularly cocuswood, from which the guilty bracelet had been fashioned

Certain woods, considered innocuous by the average person, may, under certain conditions, prove to be causative agents in the development of a dermatitis. For example, wood dust from the African boxwood, known as Marcaibo boxwood, or Zaputesco, when blown into the eyes of the workers, causes inflammation accompanied by dilation of the pupils. Wounds caused by it suppurate and healing is retarded. Originally chemical and microscopic tests made to explain the symptoms showed nothing, just as similar tests made with Brazilian walnut wood were equally unproductive, but, in both cases, experience proved to the contrary. Messrs Brady and Martin,<sup>1</sup> however, succeeded in extracting certain alkaloids and glucosides from African boxwood.

"Cocuswood," called cocobolo, of cokus ebony, is a wood that exhibits a decided tendency to cause eczematous dermatitis. It is a product of the tropics known for its unusual strength, which makes popular its use as knife handles, bowls, and walking sticks. It has the added attraction of possessing a beautiful color—deep, reddish brown, exhibiting a most decorative grain when polished.

Francis Senear,<sup>2</sup> in his discussion of dermatitis caused by woods, mentions the cocobolo among those proved dangerous, and believes that the resins may provoke a dermatitis in those who have previously been sensitized by an alkaloid also present in the wood. C W Abramowitz and W B Swarts,<sup>3</sup> reporting a case of dermatitis venenata caused by contact with cocuswood, found that this wood contained a resinous oil soluble in ether, which was easily obtained by soaking cocobolo sawdust in the ether. After filtering the solution, the ether was allowed to evaporate, leaving a dark brown gummy substance with a pungent odor—the causative agent involved in their case of the man who was carving handles for a knitting bag from this type of wood.

Crocker's<sup>4</sup> report on a man who sawed blocks from this same wood and suffered a subsequent dermatitis, seems to indicate that contact with the fresh wood is responsible. Yet Senear<sup>5</sup> cites cases where cocobolo furniture in an old, crumbling, and powdery state had had positive poisonous effects.

The case of the cocobolo bracelet described above, we wish to note, involves a third category. The causative agent was neither freshly cut wood creating a wood dust, nor old, crumbling wood, but a highly finished product. Apparently the poisonous resins contained in the wood are sufficiently powerful to act at any stage in the wood's development for industrial purposes, from the original sawing to the eventual decay.

There also appears to be a difference in the extent of the area affected. The case of Abramowitz and Swarts, predisposed by seborrhea and a tendency to profuse perspiration, suffered not only at the point of contact but on the scalp, and around the mouth, etc., while other cases cited by Senear indicated a like tendency to involve regions not making direct contact with the resinous substance. Our patient, however, may be said to have developed a dermatitis comparatively limited to the points of contact. It is possible that the patient's perspiration created a moist condition of the skin only where the heavy bracelet rested and thus no further involvements followed.

### Summary

After wearing a bracelet made of cocobolo wood, the patient suffered an inflammatory reaction at all points where the bracelet made direct contact with the skin. Scrapings of the bracelet used in patch tests provoked similar symptoms, developing into erythema with papulovesicular lesions. When the bracelet was discarded, calcium lactate and reduced iron taken internally, and applications of an alkaline lotion followed by Lassar's paste and fractional doses of x-ray therapy were employed, the dermatitis venenata disappeared.

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## THE DANDRUFF GERM GETS ITS REVENGE

The huge advertising hullabaloo over killing the dandruff germ has itself been consigned to the grave, with the funeral service read by the Federal Trade Commission. On August 3 according to the *J.A.M.A.* the Commission entered into a 'cease and desist' stipulation with the manufacturers of 'Listerine Antiseptic,' by which they agree to stop making unwarranted claims. Not only are they to cease representing that dandruff is necessarily a germ disease or is infectious, but, as we read the Federal Trade Commission said, moreover that it is also stipulated that the respondent desist from representing that the product either cures or permanently relieves dandruff that the product kills the dandruff germ, attacks the cause of dandruff or gets at the cause or at the root of the trouble' or penetrates infected hair follicles or annihilates the dandruff germ that the product frees the scalp and hair follicles of the parasite that saps their vitality or spreads a germ killing film over the scalp"; that the product has marked curative properties due to certain ingredients in a unique combination shared by no other antiseptic that ordinary remedies aren't even antiseptic; are smelly affect only surface symptoms, or merely remove surface symptoms temporarily or that competitive products are obviously inferior to Listerine

Antiseptic as a remedy for dandruff—when such are not the facts.

The so-called research on which the claims of the manufacturer for this alleged virtue of listerine were based had never been accepted by competent dermatologists as authoritative, certainly there was not the slightest controlled evidence to indicate that listerine or any similar combination could have such virtue in controlling dandruff. Thus this product, which is essentially a formula like the liquor antisepticus of the National Formulary will return to its original claims in relation to overcoming halitosis.

The history of the advertising of listerine as a preventive of halitosis has been told on many occasions. It laid the basis for many a vast advertising campaign associated with diseases discovered by advertising geniuses who thumbed the medical dictionaries. Out of the announcements of halitosis came such emphasis as has been placed on acidosis athlete's foot, dyskinesia and similar conditions. The halitosis campaign reached its apotheosis with the advertisement which announced that She Built Her Bridge Table Two Feet Wider Obviously her breath could be detected two feet away but not four feet from her. Then she tried listerine and didn't have to stretch any more for the cards in the dummy.

## ROOM FOR IMPROVEMENT

The banner states with the lowest infant mortality rates in the period 1933-1937 as they appear in the *Statistical Bulletin* of the Metropolitan Life Insurance Company are Oregon with 41.4 deaths per 1 000 live births and Washington with 42.4. New York State rate was 49.2 sixth from the top. In the percentage of improvement over the previous period, 1928-1932 the leaders were our neighboring states of Pennsylvania with 23.1 per cent improvement New Jersey with 22.3 and Connecticut, with 21.3. New York State showed a betterment of 16.6 per cent, twelfth from the head of the list. But even Oregon the state with the best record, is fully 30 per cent higher in its infant mortality rate than New Zealand, which during the period from 1933-1937 had a rate of only 31.6 per 1 000.

## OSTEOPATHS TESTS

To carry out the purposes of a law enacted this year and defining minor surgical procedure for which licensed osteopaths are permitted to use instruments the Board of Regents has directed the Commissioner of Education to conduct examinations of osteopaths. The commissioner is to prepare forms on which are to be written the credentials of applicants for the right to use instruments and anesthetics, antiseptics, narcotics, and biologic products.

The phrase minor surgical procedure is construed to include all surgical procedures excepting those involved in incision for the opening of a natural body cavity the removal of benign or malignant tumors bone fractures the amputation of an extremity or an appendage the removal of any gland or organ or part thereof or plastic surgery of the human body.

# Thirty-Third Annual Meetings of the District Branches

## PROGRAMS



### Eighth District Branch

Thursday—October 5, 1939

Hotel Richmond, Batavia, New York

#### Morning Session 10

"Trauma and Low Back Pain"—Grover C Penberthy, M D, of Detroit, associate professor of clinical surgery, Wayne University, College of Medicine

"Hematuria Its Clinical Significance"—George F Cahill, M D, of New York City, associate professor of urology, College of Physicians and Surgeons, Columbia University

"The Problem of Rheumatic Infection in Childhood"—Albert D Kaiser, M D, of Rochester, associate professor of pediatrics, University of Rochester School of Medicine

"The Western New York Medical Indemnity Plan"—Discussion opened by George R. Critchlow, M D, of Buffalo

Election of director at large

Luncheon and introduction of guests

#### Afternoon Session 1 30

Business meeting—election of officers

"Roentgenology as an Aid in the Diagnosis of Heart Disease"—Merrill C Sosman, M D, of Boston, assistant professor of roentgenology, Harvard University Medical School

Round table "The Diagnosis and Therapy of the Frequent Gastrointestinal Lesions Met with in General Practice"—Abraham H Aaron, M D, of Buffalo, Chairman

The following will assist in answering questions

Medicine Francis D Leopold, M D, of Buffalo

Surgery Walter L Machemer, M D, of Buffalo, and J Sutton Regan, M D, of Buffalo

X-ray Edward C Koenig, M D, of Buffalo

Laboratory Stuart L Vaughan, M D, of Buffalo

Questions regarding gastrointestinal problems must be submitted when you register if they are to be discussed in this round table

#### Eighth District Branch Officers

President L L Klostermeyer, M D, of Warsaw, New York

First vice-president Leon J Leahy, M D, of Buffalo, New York

Second vice-president Robert C Peale, M D, of Olean, New York

Secretary Peter J Di Natale, M D, of Batavia, New York

Treasurer Fitch H Van Orsdale, M D, of Belmont, New York

#### Presidents of Component County Societies

Allegany Phillips L Morrison, M D, of Bolivar, New York

Cattaraugus Theodore J Holmlund, M D, of Cattaraugus, New York

Chautauqua De Forest W Buckmaster, M D, of Jamestown, New York

Erie Carlton E Wertz, M D, of Buffalo, New York

Genesee G Henry Knoll, M D, of Le Roy, New York

Niagara Harley U Cramer, M D, of Lockport, New York

Orleans Alfred W Jackson, M D, of Albion, New York.

Wyoming George G Davis, M D, of Arcade, New York

### First District Branch

Wednesday—October 11, 1939

Presbyterian Hospital—New York City

#### CLINIC IN GENERAL SURGERY

Surgical Staff

Morning Session 9 00-12 00

Operative Clinic

#### Afternoon Session 2 00-5 00

"Results in Hernia Repair"—Alfred B Longacre, M D

Clinic in Tumors of Islet Tissue of the Pancreas Follow-up Results—Allen O Whipple, M D

"Indications Technique and Results in the Use of the Miller Abbott Tube —Octa C. Leigh M.D. and John A Nelson M.D

Dr Ross Golden and members of the Department of Physiology will also take part in this symposium

"Indications and Determinations of Fluid and Electrolyte Needs in Pre- and Post-Operative Patients —John A Scudder M D and Charles R. Drew M D

"Ten-Twenty Year Follow up Studies in Ulcer Therapy —Drs St John and Harvey

Disturbances in Blood Clotting and Methods of Treatment —Kenneth B Olson M D

Plastic Surgery Clinic—Drs Webster and Stevenson

## SYMPOSIUM ON FRACTURES AND TRAUMATIC LESIONS

"The Handling of Motor Accidents —Dr Darrach

Leg Fractures —Dr Hudack

Elbow Fractures —Dr Fred Smith

Ankle Fractures —Dr Barbara Stimson

Epiphyseal Injuries —Dr Clay Ray Murray

Compound Fractures' —Dr Darrach

Shoulder Injuries —Dr McLaughlin

## NEUROSURGERY

Morning Session 9 00-12:00

Operative clinic—Byron Stookey M D and Staff

Afternoon Session 2 00-4 00

The Incidence of Delayed Convulsive Disorders in Patients with Elevated and Non Elevated Depressed Fractures of the Skull —Fritz J Cramer M D (20 minutes)

Surgical Treatment of Convulsive Disorders —John Scarff M D (20 minutes)

Surgical Treatment of Frontal Lobe Tumors —Byron Stookey M D (20 minutes)

"Treatment of Spinal Injuries —Byron Stookey M D

## CLINIC IN OBSTETRICS AND GYNECOLOGY

Benjamin P Watson M.D and Staff

Morning Session

9 00-10 30—Obstetrical Ward Rounds Floors N and O (Prenatal and Postnatal Complications)

Delivery room technic—cases if available

10:30—Talks and Demonstrations Floor N

1 Use of x ray in study of the morphology of the pelvis and in the mechanism of labor

2 Studies in the physiology of the corpus luteum

3 Treatment of carcinoma of the fundus uteri, technic and results

4 Some of the rarer ovarian tumors

Afternoon Session

2 00-5:00—Gynecological Operations Floor O

## CLINIC IN GENERAL MEDICINE

Morning Session

9 30— Cardiac Pain '—Robert L. Levy M.D

10 00— Treatment of Cardiac Arrhythmias —Kenneth B Turner M D

10 30— Prophylaxis and Treatment of Rheumatic Fever' —Alvin F Coburn M D

11 00— Chemotherapy of Streptococcus, Pneumococcus and Other Bacterial Infections with Sulfanilamide and Its Derivatives —Henry M Dawson M D Yale Kneeland Jr M.D and A R. Dochez M D

Afternoon Session

2 35-2 55— Present Day Management of the Anemias —Randolph West M D

3 00-3:30— Differential Diagnosis of Splenopathies and Diseases of Liver —William P Thompson M D

3 35-4 00— Laboratory Aids in Differential Diagnosis of Liver Disease —Franklin M Hanger M D

4 00-4 30— Differential Diagnosis of Liver Lesions with Jaundice' —Robert F Loeb M D

4 30— Ulcer of Stomach and Duodenum' —Charles Flood M D  
Cardiospasm —Armistead C Crump, M D

## PEDIATRICS

Morning Session 8 30-12 30

Operative Clinic—Edward J Donovan, M D  
William G Heeks M D Louis M Rousselot, M.D George Humphreys M D

Afternoon Session 2 00-4 00

Dry Clinic

Congenital Duodenal Obstruction —Edward J Donovan M D

Treatment of Acute Empyema in Children —William G Heeks, M D

Splenectomy for Various Conditions in Children —Louis M Rousselot M D

Treatment of General Peritonitis in Children —George Humphreys M D

## OPHTHALMOLOGY

Morning Session 9 00-11:00

Clinical Demonstrations

Afternoon Session 2 00-4 00

Operative Clinics—Dr Dunnington and Staff

## UROLOGY

Morning Session 9 00

Demonstrated Exhibits—Floor M Room 510 College of Physicians and Surgeons, 630 W 168th St. and Room 1025 Floor I Presbyterian Hospital 622 W 108th St.

1 Traumatic Injuries of the Genitourinary Tract

2 Tumors of the Kidney Kidney Pelvis and Ureter

Afternoon Session 2 00-5 00

Operative Clinic—Members of the Staff of the J Bentley Squier Urological Clinic

## CLINIC IN RADIOTHERAPY

"Infections"—A Hunter, M D, and L Hinkle, M D

"Hyperthyroidism"—B Sanger, M D

"Benign Uterine Bleeding"—J Corscaden, M D

"Radiotherapy of Lymphosarcoma and Hodgkin's Disease"—H Kasabach, M D

"Control of the Leukemias with Radiotherapy"—K R. McAlpin, M D

"Epitheliomas of the Oral Cavity"—T Eberhard, M D

"Epitheliomas of the Pharynx and Larynx,"

"Carcinoma of the Breast"—M Lenz, M D

## GENERAL INFORMATION

**PLACE OF MEETING**—Presbyterian Hospital, Medical Center Physicians should enter at 620 W 168th Street, where registrars will distribute latest information regarding special clinics

**LUNCHEON**—The Hospital has invited the members attending the session to be its guests at luncheon at 1 00 P.M. on Floor "R"

## SYMPOSIUM ON SILICOSIS

A clinical session on Chronic Pulmonary Diseases, under the auspices of the Tuberculosis Sanatorium Conference of metropolitan New York, will be held at Cornell University Medical College amphitheater, New York City, Wednesday evening, October 11, as per the following program

Grant Thorburn, M D, chairman, presiding  
1 "Etiology and Diagnosis"—Anthony J Lanza, M D, assistant medical director, Metropolitan Life Insurance Company

2 "Some Important Considerations of the

Radiographic Aspect of Silicosis"—John R Carty, M D, radiologist-in-chief, New York Hospital

3 "Medico-Legal Aspects"—Mr Theodore C Waters, of Baltimore, Maryland

4 Discussion opened by Leonard Greenburg, M D, executive director, Division of Industrial Hygiene, New York State Department of Labor

An informal presentation of x-ray films, 7 45 P.M. to 8 30 P.M., led by Dr Samuel F Weitzner, radiologist, Morrisania City Hospital, will precede the formal session

## LECTURE COURSE IN DENTAL MEDICINE

The Mount Sinai Hospital, of New York City, announces its 9th lecture course in dental medicine for the season of 1939-1940

Ralph Howard Brodsky, M D  
October 17, 1939

Franklin Hollander, M D  
November 21, 1939

Israel Wechsler, M D  
December 19, 1939

Solomon Silver, M D  
January 16, 1940

Leon Ginzburg, M D  
February 20, 1940

Stanley S Schneerson, M D  
March 19, 1940

Daniel M Kollen, M D  
April 16, 1940

"The Grenz Ray in Periodontoclasia and Oral Tuberculous Lesions"

"Calcification of the Teeth in Relation to Caries"

"Neurological Disturbances and Their Effects on Oral Lesions"

"The Dental Aspect of Endocrine Disorders"

"Diagnosis and Surgical Treatment of Cellulitis of the Face and Neck"

"Anaerobic Infections of the Mouth and Their Relation to Systemic Disease"

"Retention of Pulpless Teeth, and Their Bacteriological Findings"

All lectures start promptly at 8 30 P.M. They will be held in the Lecture Room on the third floor of the Administration Building. There will be a presentation of clinical cases before each lecture. All physicians and dentists are cordially invited to attend.

# Medical News

## Brooklyn Hobby Cavalry Galloping

**D**OCTORS of Brooklyn are expanding among themselves a hobby program of true therapeutic value. The backbone for this undertaking believed to be without parallel is the membership of the Kings County Medical Society and the agent is the committee on social activities says an article in the *New York Times*.

Dramatization of radio talks conducted by the society last year led to the discovery of talent for and love of acting. The Doctors' Theatre group was formed. Then musical members created the Doctors' Orchestra and the Doctors' Choir. Separate groups began gathering together in other fields, until today the committee holds card files with the names of 300 men and women interested in a score of subjects.

The program gained real headway in March. During the summer months it lay dormant as expected but a heavy schedule of exhibitions, contests and performances is being drawn up for the fall and winter. Dr. H. Tevel Zankel, committee chairman, divides it into music, drama and literature, arts and crafts (including photography) and sports and collecting.

### Wide Range of Talent

This last category offers the widest range. Stamp collecting leads the list. Less widespread are the array of tablespoons assembled by a well known surgeon, the Oriental armor of a gynecologist or ancient firearms of another surgeon. One Flatbush eye specialist has a fondness for elephants in any medium.

Early American glass, Pennsylvania metal ware and miniature liquor bottles are sure to attract the attention of a certain Brooklyn woman doctor. She has a generous assortment of all three. Dr. Abraham Bernhardt is among the few whose names can be made public, so acute is the wish for anonymity. He is a recognized authority on plants, flowers, shells, and semi-precious stones.

Antique furniture, ivory, Wedgwood china, tropical fish, rare books, butterflies and coins add to the number of things treasured by medical men in the borough. Dr. Zankel proposes to hold collectors' shows at the society's headquarters, 1318 Bedford Avenue, or some suitable place in the near future.

Musically inclined physicians responded faster than their fellows. Many of them were said to have relinquished active playing in their high

school days and gladly accepted the chance to revive techniques all but lost. A competent lay director was hired and two concerts were given.

Dr. Martin Maliner is chairman of the subcommittee on music. The group rehearsed Wednesday nights in the auditorium of the Brooklyn State Hospital. Proceeds from entertainments went to the Physicians Home, 52 East Sixty-sixth Street, Manhattan. Dr. Maliner says: "There must be many more doctors who play instruments—classic or swing take your choice!"

### Modest Vocalists

Singing practitioners were reluctant at first to appear and Dr. Joseph L. Kostecki, chairman, and Dr. Abraham Rosenthal, conductor, experienced difficulty getting started. However, the choir gave a concert on June 5.

Three skits were performed by the Doctors' Theatre in May and June. A play is being lined up for the fall. There is a likelihood that lay actors will be presented under the direction and management of drama-minded medical men.

Dr. Carroll L. Nichols is in charge of the arts and crafts department. Painting, drawing and photography have made rapid strides while sculpture will be stressed in coming months.

Shooting and tennis have the benefit of expert guidance. Dr. Louis F. Knoll, president of the Bergen Beach Gun Club, has organized weekly meetings on Saturday afternoons, rain or shine. A tennis tournament will be supervised by Dr. Lawrence Kurzrok, one of the country's outstanding amateurs.

Dr. Vincent Rosati is general chairman of the sports program. Progress was reported with the following as proof: horseback riding with instruction provided by two army officers, bowling competitions in the office, wrestling or jujitsu at the private gymnasium of Dr. George I. Swetlow, boxing under a qualified teacher, deep-sea fishing trips, scheduled golf at Bethpage State Park, Long Island, and such miscellaneous pursuits as cruising, fencing, archery and softball.

A recent entertainment staged by the committee on social activities at the State Hospital brought to light one of the natural problems confronting any group of doctors and dentists. A skit on the program had to be canceled at the last minute when an emergency call robbed the cast of its leading player.

## County News

### Albany County

Dr. Harold Rypins, of Albany, who died on August 25, aged forty-six, bequeathed his body to the advancement of science. He had promised it to the New York University Hospital several years ago. For sixteen years Dr. Rypins had been secretary of the State Board of Medical Examiners in the State Education Department and had led the state's crusade for medical law enforcement.

Dr. Rypins promoted the Webb-Loomis Medical Practice Act forbidding use of the title "Doctor" without specific license. In its first year of operation in 1927 the law was said to have driven more than 1,000 quacks from the state.

He was president of the Federation of State Medical Boards of the United States in 1933-34 and had been a member for many years of the National Board of Medical Examiners.

## MEDICAL NEWS

## Chemung County

Dr Arthur W Booth, of Elmira, addressed the Kiwanis Club there on August 31 on socialized medicine

## Cortland County

Dr Merle R French, county health commissioner since April, 1935, and president of the Cortland County Medical Society, assumed on September 1 his new position as health director with the W K Kellogg Foundation, and has located at Paw Paw, Michigan. His duties in this county will be carried on temporarily by Dr J Sumter Cunningham, of Rochester, until a successor to Dr French is chosen by the Cortland County Board of Health

## Erie County

Stricken with a heart attack on his forty-second birthday, Dr Allen R Long, member of the University of Buffalo Medical School faculty and consulting diagnostician for many Buffalo physicians, died suddenly in his home at 972 Lafayette Ave., on August 25

A member of the Deaconess Hospital staff, Dr Long was professor of laboratory and physical diagnosis in the Medical School, where he had taught for twelve years. He was well known as a diagnostician of unusual diseases. He conducted medical examinations for all University of Buffalo athletes

## Kings County

On Friday afternoon, October 6, at four o'clock there will be a lecture in the MacNaughton Auditorium. The subject is "Abdominal Diagnosis," and the speaker, Dr Meyer A Rabinowitz of Brooklyn

On October 17, at 8 45 P M in the same auditorium the regular meeting of the society will take place. The program is as follows: "Regional Ileitis Medical Aspects and Surgical Indications," Dr Burrill B Crohn, Manhattan, "Bleeding Lesions of the Intestinal Tract and Roentgenologic Diagnosis," Dr Byrl R Kirkin, Mayo Clinic, "Carcinoma of the Duodenum and Ileum," Dr Charles W Mayo, Mayo Clinic, Rochester, Minnesota

## Lewis County

At the annual meeting on September 11, Dr T A Lynch was elected president, Dr Elbert Dalton, of Beaver Falls, secretary-treasurer, Dr D J O'Connor, of Croghan, vice-president, Dr H E Chapin and Dr C H Vadney, censors

## Nassau County

The *News* of the Nassau County Medical Society says it is "pleased to observe that a large number of members of this society are contributing original articles and case reports to current medical publications," and is "anxious to have reprints of all such articles published by our members." The following is a list of publications noted in recent months:

"Urticaria of Emotional Origin," by Daniel Blitz, M D, *NEW YORK STATE JOURNAL OF MEDICINE*, July 1, 1939, "Causes of Rectal Bleeding," by Richard Derby, M D, F A C S, *Medical Times*, May, 1939, "Causalgia, A Cause of Backache," Otho C Hudson, M D, F A C S, and Carl A Hetteshemer, M D, F A C S,

*Medical Times*, May, 1939, "Diphtheria of the Pleura," by Willard J Davies, M D, F A C P, *NEW YORK STATE JOURNAL OF MEDICINE*, June 1, 1939, "A Lump in the Breast," by A Storrs Warner, M D, F A C S, *Medical Times*, June, 1939, "Emergency Treatment of Fractures," by Otho C Hudson, M D, F A C S, *Medical Times*, August, 1939, "Salivary Gland Tumors," by John N Shell, M D, *Medical Times*, August, 1939, "Complicated Supracondylar Fracture of the Humerus," by William P Bartells, M D, *Medical Times*, August, 1939, "Nonobstetric Abnormal Vaginal Bleeding," by Arthur C Martin, M D, F A C S, *Medical Times*, August, 1939

The New York State Association of School Physicians has elected Dr Louis A Van Kleeck, of Manhasset, as its president for the coming year

## New York County

The City Planning Commission on August 14 received the proposal of Dr Thomas A Gonzales, chief medical examiner of the greater city, that \$500,000 be assigned for erection of an Institute of Forensic Medicine, preferably near Bellevue Hospital, for instruction of medical men and lawyers in crime detection and testimony in court. By 1944-45 an additional \$400,000 would be needed to enlarge the institute's laboratories

Dr Frank Lederfeind, forty years old, of 328 West 145th Street, was taken to the Lutheran Hospital on August 26, suffering from stab wounds in the chest, after he and another physician were attacked by two Negro bandits on the second floor of 2468 Seventh Avenue. Dr Lederfeind and Dr Harold Gotlow, forty years old, of 511 West 51st Street, told police that the assailants jumped out from behind a door

The New York Academy of Medicine will hold its Twelfth Graduate Fortnight, October 23 to November 3, on the subject "The Endocrine Glands and Their Disorders"

On Monday evening, October 23, the program will be presented jointly with the Medical Society of the County of New York and immediately preceding the opening there will be an Executive Session of the County Society with Dr Howard Fox presiding

The program of the evening, begins at 8 30 and is as follows:

I Address of Welcome by Dr Malcolm Goodridge, President of the New York Academy of Medicine

II Scientific Program 1 Historical sketch of the development of endocrinology, by Dr H M Evans, Director Institute of Experimental Biology, University of California 2 Physiology of anterior lobe of pituitary gland, by Dr J B Collip, Professor of Biochemistry, McGill University

Dr Milton Arlanden Bridges, of 580 Park Avenue, practicing physician, dietetics authority, and author and lecturer on medical subjects, died after a short illness on August 19. He was forty-five years old

Dr Bridges was the director of medicine at the Detention Hospital, Rikers Island, and the West Side Hospital in Manhattan. He was consulting

physician at Scaview Hospital Staten Island and for the Department of Education at New York University. He was assistant professor of clinical medicine and lecturer in therapeutics and nutrition at the New York Post Graduate Medical School of Columbia University associate attending physician and chief of diagnostic clinic at Post-Graduate Hospital.

Dr Bridges was the author of *Dietetics for the Clinician* and *Analysis of Foods and Beverages*.

He also was an amateur magician and a former member of the Society of American Magicians. He was a collector of books on magic and his library on that subject was considered one of the most complete collections in the world.

#### Oneida County

The medical plan for insuring payment of physicians fees, to which members of the Oneida County Medical Society the Utica Academy of Medicine and medical staffs of nineteen Central New York hospitals have subscribed is described by H C Stephenson manager of the Hospital Plan Inc. in a leaflet issued in September.

The plan supplements the hospitalization system in that it will pay its subscribers medical and surgical fees.

Tentatively it provides for medical service by a licensed physician anywhere in the world and covers maximum medical and surgical benefits in a hospital up to \$225 for gainfully employed \$300 for a husband and wife or \$400 for husband wife, and children.

Other benefits include x ray treatment up to \$150 no limit on anesthesia complete prenatal and maternity care, treatment following surgery medical care and proper treatment annual medical examination if desired and osteopathy.

In claiming these benefits a subscriber is allowed thirty visits to a physician's office thirty to the hospital and twenty at some other place during each contract year.

Patients will be permitted the free choice of physicians who guarantee to render service called for during the life of the subscriber's contract.

The probable cost to the gainfully employed subscriber will be 80 cents a month for the adult dependent 70 cents a month and for children under 16 40 cents a month.

Billing, enrollments, and other clerical details will be handled by the Hospital Plan Inc. so that both the hospital and medical benefits will be available on the same billing. Like the Hospital Plan the proposed medical plan will be operated under the supervision of New York State Department of Insurance.

#### Onondaga County

Dr Clarke E Hinman, one of the oldest physicians in Syracuse, died on August 27 at his home 202 Slocum Avenue. He was eighty years old and had practiced his profession in Syracuse forty four years.

#### Putnam County

On August 23 the Putnam County Medical Society held a beefsteak dinner in Fahnestock park.

"This was a most delightful affair," says the *Carmel Courier*, "with the beautiful old trees and the convenient outdoor ovens for cooking and the doctors who are real artists at serving these delicious dinners, along with the wonderfully pre-

pared dishes for which the doctors' wives should receive a vote of appreciation made this dinner a real success.

The menu consisted of melon, beefsteak, salad tomatoes rolls, corn on the cob fresh peach ice cream, cake and coffee.

Following the dinner group singing was enjoyed and many lovely old melodies were brought to memory by the talented musicians in the crowd.

Everyone enjoyed this delightful party and extended a vote of appreciation to the doctors who proved themselves real experts in the art of cooking as well as in entertaining.

#### Queens County

Dr Simon R. Klein seventy years old of 25-64 37th Street Astoria pathologist and educator who was found living in poverty two years ago about to be evicted for nonpayment of rent was buried on August 22 in St. Michael's Cemetery following funeral services in St. Joseph's Church Astoria.

Dr Klein died in Creedmoor State Hospital of a complication of diseases on August 18.

Dr Klein's plight was first brought to notice when he wrote to Victor Ridder then chairman of the state board of social welfare offering to sell his scientific library of 600 volumes in order to get money for the rent.

Investigation brought to light his brilliant career and the fact that he held honorary degrees from six famous universities.

At the time he faced eviction Dr Klein's health was poor and it rapidly grew worse. His family offered to take care of him, refusing to allow him to sell his library.

About eight months ago he was brought to Creedmoor, where he died.

Dr Joseph Wrana, president of the Queens County Medical Society addressed nearly 600 members of the American Congress of Therapy at the Science and Education Building at the World's Fair on September 7.

#### Saratoga County

Dr Frank J. Sherman, prominent practicing physician of Ballston Spa for fifty nine years and health officer of the village for a long time, died in Benedict Memorial Hospital there after three weeks illness on August 25.

#### Schenectady County

The Medical Society of the County of Schenectady held a joint meeting with the Schenectady County Dental Society on September 7 in the auditorium of the Sunny View Home on Rosa Road.

The purpose of the meeting was to hear Mr. Ralph Creer who is internationally known for his photographic work in dental and medical cases. Mr. Creer is a member of the staff at the U. S. Veterans Hospital at Hines, Illinois where he is principal clinical photographer of the Tumor Research Unit. In recognition of his outstanding work, Mr. Creer was recently awarded a Fellowship in the Royal Photographic Society of Great Britain.

Mr. Creer not only showed some of his medical and dental pictures, but also spoke on the technique of taking and developing surgical pictures. — Reported by Joseph H. Nawmoff, M.D., Secretary.



Schoharie County

The annual meeting of the Schoharie County Medical Society will be held in the W H Golding Central School on Tuesday, October 10 Business Session at 11 A M , Scientific Session, 1 30 P M (program to be announced) There will be a series of postgraduate lectures as arranged by Dr Wardner D Ayer, of Syracuse, on organic neurology on each Tuesday of October at 3 30 P M at the W H Golding Central School, Cobleskill—*Reported by H L Odell, M D , Secretary*

Steuben County

The September meeting of the Steuben County Medical Society was held at the Sherwood Hotel in Hornell on Sept 14 Dr Elmer Milch, of Buffalo, presented the paper which he gave at the A M A meeting last May on "The Treatment of Diffuse Peritonitis Subsequent to Appendicitis with Perforations"—*Reported by R. J Shafer, M D , Secretary*

Suffolk County

Evidence was presented by Dr Arthur T Davis, commissioner of the Suffolk County Health Department, at a recent meeting of the health officers of the New York metropolitan area, that Rocky Mountain spotted fever had gained a foothold on the eastern end of Long Island, having apparently been introduced shortly before 1912 on Gardiner's Island through the importation of deer from Wyoming In

retrospect, the first human case appears to have been in 1912, though the nature of the infection was not then recognized The next cases occurred in 1924, and since that time 36 cases have been reported According to Dr Davis, the disease appears to be slowly spreading westward in Suffolk County Inasmuch as the disease is spread by ticks, preventive measures must be directed chiefly to the avoidance of tick bites by the wearing of suitable clothing, and by promptly picking off ticks which may have attached themselves to the body

Washington County

The annual meeting of the Washington County Medical Society will be held on October 3, with election of officers and new members The scientific program will include Vice-President's Address, by Dr V K Irvine, of Granville, "Some Economic Problems of Modern Medicine," by Dr Homer L Nelms, of Albany, and an address by Dr James F Rooney, of Albany —*Reported by D M Vickers, M D , Secretary*

Westchester County

Mount Vernon is soon to have a city laboratory Westchester County Medical Society meets at New York Hospital, Westchester Division, White Plains, on Tuesday evening, October 17, 1939 The speaker will be Dr George Draper, of New York City

POSTGRADUATE COURSE—MONROE COUNTY MEDICAL SOCIETY

Dr Thomas P Farmer, of Syracuse, chairman of the Council Committee on Public Health and Education, has arranged the following course for the Monroe County Medical Society, to be given at the Rochester Academy of Medicine, Rochester, New York, at 4 30 P M

October 2—"Nephritis"—Dr John D Lyttle, The Babies Hospital, Broadway and 167th St , New York City

October 9—"New Factors Which Tend to Reduce Maternal Mortality"—Dr Ferdinand J

Schoeneck, 713 East Genesee Street, Syracuse New York

October 16—"Gallbladder Disease"—Dr John F Erdmann, 122 East 70th Street, New York City

October 23—Title has not been announced yet—Dr John J Morton, Jr , Strong Memorial Hospital, Rochester, New York

October 30—"A General Consideration of Anemia, both Primary and Secondary"—Dr Kenneth R. McAlpin, Presbyterian Hospital, New York City

Deaths of New York State Physicians				
Name	Age	Medical School	Date of Death	Residence
Bennett S Beach	77	P & S , N Y	September 13	Manhattan
Joseph A Brady	61	L I C Hosp	August 26	Manhattan
William M Brown	71	N Y U	July 25	Rochester
George F Goodfellow	49	Queen's Canada	June 2	Saratoga Springs
Max Halle	66	Berlin	September 5	Manhattan
Clarke E Hinman	80	N Y Hom	August 27	Syracuse
Thomas Manning	75	Bell	September 5	New Rochelle
Joseph L Morrissey	47	L I C Hosp	September 12	Elmhurst
Leo T Perrault	55	Jefferson	August 25	Manhattan
William M Richards	66	Bell	September 11	Manhattan
Frank J Sherman	80	Vermont	August 25	Ballston Spa
M Jean Wilson	78	Buffalo	May 26	Warsaw

# Hospital News

## The Hospital and Graduate Medical Education

EVERYONE recognizes that the internship is a vital part of the young physician's education, to give him practical experience and responsibility sufficient to equip him for the practice of medicine. Indeed the opinion is growing that the intern period should become part of the medical course proper and that supervision and direction of the hospital training should be a joint responsibility of the medical schools and those hospitals which provide or can arrange a satisfactory educational experience. So writes Dr. Willard C. Rappleye, President of the Association of American Medical Colleges Hospitals (Chicago) official organ of the American Hospital Association. "Yet he adds, probably the internship is the most defective segment of medical education at present and it will have to be corrected in many hospitals before any satisfactory program of graduate training can be instituted."

### Must Work Together

Dr. Rappleye declares that the answer to this vital phase of medical education is a cooperative program of the medical schools, state licensing boards, and those hospitals which can provide adequate educational experience in the internship. This will require an intimate cooperation of hospitals and medical schools in each region, with united action on such matters as intern selection and instruction and the coordination of the hospital period with the clinical clerkships of the medical course. It will also necessitate nationwide provision for intern placement outside of the local areas. Such a program will result in significant changes in school as well as in hospital procedures and should be kept flexible to meet variations in facilities of individual hospitals and the needs of different groups of students. The emphasis should be on standards rather than standardization.

The intern period should be focussed on the principles of internal medicine, pediatrics, and cooperative surgery which now constitute the major emphasis of the medical course, leaving advanced training in the specialties to the graduate field. This conception of the internship and its articulation with the undergraduate course as a fifth year will require extensive modification of the internship in many hospitals and affiliations with medical schools by those hospitals which are not now closely associated. The plan would require the cooperation of the state medical boards, particularly those which have established rigid regulations of the intern period.

### Training Specialists

The training of a sufficient number of specialists to meet the needs of the country according to the standards of the American boards and the Advisory Board for Medical Specialties can be accomplished only by modifications in existing intern services and the development of new facilities and opportunities in the hospitals.

There is substantial agreement among all groups of specialists on the standards of training

to be enforced after 1942. Increasing pressure will be brought to bear on the hospitals by the numerous professional organizations to provide facilities, instruction, and opportunities for such training.

Experience has shown that a program of graduate teaching tends to improve the quality of medical care in the hospital. The stimulus of teaching activities, the encouragement of research, the increased interest in staff conferences, the fuller development and use of the library laboratories, x-ray and clinical facilities for instruction, the increase in the opportunities for younger members of the staff to participate in teaching, the presence on the house staff of mature graduate students who have had previous hospital experience, the improvement of patients' records and of the nursing, dietetic and other services, and the attraction of superior graduates from the best medical schools—all these contribute considerably to elevate the professional care of patients.

Satisfactory plans of graduate teaching can be carried out, however, only in those institutions in which the hospital services are properly organized, the staff is competent to provide real instruction and is willing to organize itself to take the responsibility for teaching and where the hospital administration encourages instruction.

The program should include close cooperation of the hospitals and medical schools to provide preparation in the medical sciences related to the specialties, as well as adequate supervised clinical training. Development of a sound national program will require common study and action by the hospitals, medical schools, licensing bodies and the various organizations of specialists.

### Central Body Has Been Formed

Clearly a central unifying agency is demanded and in response to the obvious situation, thirteen national organizations representing the hospitals, universities, college medical schools, licensing agencies, public health and specialty groups have created the Advisory Council on Medical Education, the first central representative body in the United States dealing with medical education.

The Advisory Council will have no administrative functions. Its purpose is to help coordinate the efforts of existing agencies relative to studies, standards, and educational procedures particularly in those areas that overlap several organizations. The success of the Council will depend upon the support given by each member organization and the willingness of members to cooperate with other groups in common problems.

Graduate medical education is rapidly becoming an essential feature of proper medical care with all the broad public responsibilities which that implies. The hospital holds the key position in any program designed to meet the problem successfully, Dr. Rappleye declares. It can meet its obligations however only with the full and sympathetic support of the educational, licensing and professional organizations. The

Advisory Council intends to provide that type of support. The hospitals are essential units in modern medical practice and education. In collaboration with other professional and edu-

cational bodies they have a unique opportunity for leadership in graduate medical education and in shaping public policies relative to the medical care of the entire population of the country.

### Socialized Hospitals—a Threat

**A** FORMER president of the Colorado Hospital Association, Dr. Herbert A. Black, of Pueblo, is so aroused by the danger of the socialization of American hospitals that he came before the Association at its last meeting with a forcible and colorful paper bearing the above title.

"Friends, associates, and co-workers in the hospital field," he asked, "where today are we headed?" "I speak not as a theorist or a dreamer," he added, "but merely as one who has enjoyed many years of actual experience in dealing with the practice of medicine and the management of hospitals, and who now views with concern certain existing conditions."

#### Whence Cometh the Call?

"Whence cometh this call for a fundamentally radical change in this humanitarian service?" asks Dr. Black. It comes chiefly, he replies, from a coterie comprised of out-and-out politicians and misguided though sincere social-conscious persons who used a survey that didn't survey, and a National Health Program emanating from a self-sponsored and self-serving conference that didn't confer. It is charitable to say that the conference referred to and styled the National Health Conference was concerned in misguided enthusiasm, born under amateurish care, and wet-nursed by robots. Though not as useful, that particular gathering which met in Washington in July, 1938, may in other respects be likened to the Mississippi mule, since it was born without pride of ancestry or hope of posterity.

However, for ways that are dark and tricks that are vain, Bret Harte's Chinaman was a piker in the kindergarten grade when compared to the devotees of the political pork barrel,—alas, we know them well!

We are told there must be more hospital

facilities. Why? Because that surveyorless "survey" found many counties in the United States without hospitals. Since it's nicer to say "stupid" rather than to use the word "asinine," gladly again are we charitable and say that in this respect the reported survey was just stupid. Here in Colorado there are counties without hospitals—the majority of whose inhabitants live nearer to excellent hospitals in adjacent counties than do many persons resident in those counties supplied with creditable hospital facilities. I am reliably informed that comparable conditions exist rather generally throughout the United States. True, the building of thousands of small hospitals throughout the country would for a time supply work for the unemployed, but, more important, it would supply another governmental bureau which, if functioning true to form, would be staffed by political henchmen.

#### Challenge Misguided Zealots

Not for the voluntary hospitals alone, but for the physical, moral, and spiritual rights of humanity, should we realize the threat of socialized hospitals and be alive to challenge these misguided zealots, declares Dr. Black. As a tiny insect can eat away the pillars of a stately temple, so may certain unholy influences destroy an empire.

Harmony is more to be sought than discord, and peace more desirable than war, but if harmony and peace are denied us, and in the pride of power there be those clothed in a little brief authority who seek to impose unjustly their will upon us, then we must fight and employ every weapon at our command.

"Lord, God of Hosts

Be with us yet

Lest we forget

Lest we forget "

### If War Should Come to America

**T**HIS tragic possibility is of course in every mind, and while we all hope it may not be realized, the danger cannot be denied, and, says the editor of *Hospitals* (Chicago), "the executives of our hospitals should give sober thought to every distressing eventuality and the honorable and useful service which our hospitals and their staffs may render."

The position of our hospitals is much better today than at the beginning of the World War, he adds. Hospitals will not be commandeered, bought, or taken over by the Government as they were in those troublous days. The General Staff will have at their disposal, adequately staffed and ready for wartime service, more than one hundred well-equipped Army, Navy, and public health service hospitals, and veterans' facilities.

The reserve medical organizations have been organized for general, base, or field hospital service, and can be placed in the field almost immediately and without greatly disturbing the staffs of our voluntary hospitals or our tax-supported hospitals, other than institutions under control of Federal Government departments.

But even if war does not come to America, the burdens of our hospitals will be increased. The civil population of Europe will suffer severely. Innocent children and men and women will be mangled and wounded, and in humanity's common cause our hospitals will be asked to take care of these innocents, if, as is more than probable, the hospitals of Europe cannot care for them. Our Red Cross and our philanthropic organizations will help to heal the wounds that war will create and will help to restore the un-

fortunates to health and a useful life, as far as medical skill and good hospital care can.

Our Association the Catholic and Protestant Hospital Associations and the Canadian Hospital

Council should unite in developing a program which all our hospitals may adopt to help a stricken world when the world and its peoples will need help most.

## Hospitals Legally Required to Warn Nurses of Communicable Diseases

ONE of the greatest dangers that confronts a nurse is the possibility of contracting some contagious disease from a patient. She may comply with all ordinary rules of hygiene yet the virulence of some diseases leaps all barriers and precautions. Indeed it is inevitable that a certain small proportion of nurses will fall ill and some may even die or suffer for a long time from the ravages and effects of the illness.

What then is the legal responsibility of the hospital and the doctor in such a case?

A member of the Chicago bar Mr I H Rubenstein answers this important question in *Hospital Management* (Chicago). He first cites the leading case of *Hewett v Women's Hospital Association*, where the plaintiff a student nurse in the defendant hospital attended a diphtheria case and was not told of the nature of the disease until she had contracted it. The nurse sued both the hospital and the physician and obtained judgment solely against the hospital.

In a later case in Minnesota, *Towne v St Luke's Hospital* a nurse fell ill and a student nurse was sent to take care of her. Four days later the nurse was found to have scarlet fever. The patient was immediately isolated and plaintiff was not permitted to enter the patient's room again. Shortly thereafter plaintiff became ill with the disease. In an action for damages the hospital was held not liable for the plaintiff's illness.

The difference between the *Towne* case and the *Hewett* case is that in the *Towne* case says Mr Rubenstein, the hospital authorities as soon as they had knowledge of the patient's disease acted with due diligence by giving the

attending student nurse prompt notice that the patient was afflicted with such a disease and also by immediately removing her from the patient's room. By such prompt notice and removal the hospital authorities fulfilled the obligation which the hospital owed to the student nurse to preserve and protect her health.

In recapitulation, it may be stated that the law requires that where a patient in a hospital is ill with an infectious or contagious disease the hospital authorities are under a duty just as soon as they have knowledge of the disease of the patient to advise and warn the attending student nurse of this fact and also to remove her immediately from the patient's room. Failure on the part of the hospital authorities to do both of these things makes the hospital liable to the student nurse.

Under the same circumstances, we are told the hospital's duty to a registered nurse is merely to give her immediate notice and warning of the existence nature and danger of the disease. The law is the same whether the registered nurse is an employee of the hospital or is engaged by the hospital on a special case, and whether the hospital is a charitable institution or one conducted for profit.

A registered nurse may not only have a cause of action against a hospital but also against a physician a patient or even the latter's relatives or friends depending upon who engaged her and provided that the facts and circumstances are such that the party in question has knowledge of the fact that the patient is ill with an infectious or contagious disease and keeps the nurse in ignorance by failing to advise and warn her of this fact.

## Newsy Notes

More than six hundred people visited the new hospital at Romulus on its opening day Sunday Aug 13. It is under the direction of Dr Floyd W Hoffman who has made extensive alterations and added a new wing. In a recent inspection it received from the State Department an A rating in its class. It will be an open-staff institution and its facilities will be available to any licensed physician. It has 13 beds and 4 basins.

The Pilgrim State Hospital at Brentwood, which has a larger employee-patient population

than Bay Shore and Brightwaters combined has applied to Washington for a postoffice of its own.

The total population at the hospital is 10 500 and this will be augmented by another 1 000 when the new group of buildings is completed next summer. It is a village within itself.

Mrs. Floyd V Walters former head of the Johnstown Hospital, plans to open a hospital in Cobleskill. The new institution will be known as the Cobleskill Community Hospital.

## At the Helm

These hospital officials have been chosen

Dr Cornelius P Rhoads, to be director of the new Memorial Hospital in New York City

Mrs Eva B Berry, to be superintendent of the Batavia Hospital

Dr E L Harmon, to be director of Grasslands Hospital

John G Barry, to be chairman of the board of managers, and Chester H Lang to be president of the Hospital Association of the city of Schenectady, both re-elected

Philip E Good, to be president of the Mahopac Emergency Hospital

## COLORED DOCTORS OPPOSE WAGNER BILL

Official disapproval of the Wagner Health Bill because it fails to provide safeguards against discrimination in either its administrative setup or operation, was expressed by the National Medical Association at its forty-fifth annual convention in New York City in August. While it agrees with the professed objectives of the Wagner Bill, it finds so many serious faults in the methods invoked to achieve them that it believes it best to reject the proposed statute in its entirety and set out afresh to formulate a better law.

Among the reasons for the N.M.A.'s refusal to endorse the Wagner Bill is the latter's failure to provide suitable coordination of national health activities or to set any limits on expenditures after 1940. Moreover, it does not establish reliable safeguards against the political selection of personnel.

From the professional viewpoint, the N.M.A. finds that the Wagner Bill does not conserve the doctor-patient relationship or call for medical participation in medical planning.

Sociologically also the Wagner Bill has serious flaws in the eyes of the N.M.A. Although it professes to remedy a prevalent need, it does not make this need the criterion of Federal aid. Under the proposed system of grants, Federal

money would be given to wealthy states, able to match the Federal contribution, even though those states were in no need of outside assistance. On the other hand, the poorer states, where need is greatest, would receive no Federal aid if they were unable to pay their share.

The National Medical Association emphasizes another point of importance to religious and racial minorities. The Wagner Bill turns over the administration of Federal funds to local authorities without provision against religious or racial discrimination. The demand for such safeguards cannot be dismissed as supererogative in the face of the strong prejudices current in some sections of the country.

The attitude of the N.M.A. toward a national health program cannot be construed as negative, observes the *New York Medical Week*. It favors such a program, but one which coordinates all national health activities in a Federal Department of Health headed by a physician, which allows the public complete personal freedom in the choice of physicians and dentists and which protects against political, religious, or racial discrimination. In these conditions it is joined not merely by the rest of the medical profession but by responsible lay opinion throughout the country.

## POSTGRADUATE COURSE ON ORGANIC NEUROLOGY

This course, arranged and given by Wardner D. Ayer, M.D., 608 East Genesee Street, Syracuse, through the Council Committee on Public Health and Education, State Medical Society, is for the Schoharie County Medical Society (Library, Cobleskill, 2:30 P.M.) and the Montgomery County Medical Society (Elks Club, Amsterdam, 8:30 P.M.)

THE BRAIN AND SPINAL CORD (given September 26)

Reorientation by actual brain sectioning with one specimen to each two men, by lantern slides and photostat diagrams

Oct 3 (a) THE NEUROLOGICAL EXAMINATION  
Simple examination forms

(b) THE LUMBAR PUNCTURE AND EXAMINATION OF SPINAL FLUID

Oct 10 ACUTE INFECTIOUS PROCESSES  
Meningitis, encephalitis, poliomyelitis, and myelitis

Oct 17 CEREBRAL HEMORRHAGE AND THROMBOSIS

The Circle of Willis and its branches  
CEREBRAL TRAUMA  
CEREBROSPINAL SYPHILIS  
PARKINSON'S DISEASE  
Extrapyramidal tract lesions

Oct 24 BRAIN TUMOR—BRAIN ABSCESS—EPILEPSY

Oct 31 SPASTIC PARAPLEGIA AND DISEASES OF THE SPINAL CORD

Review of tracts, the cord tumor, traumatic lesions, disseminated sclerosis, cord changes with anemia and deficiency states

PERIPHERAL NEURITIS  
PATHOLOGY OF THE INTRAVERTEBRAL DISK

Each lecture will be supplemented by comprehensive lantern slides, mimeograph outline sheets, photostat diagrams, and, if occasion offers, by actual case analyses

# Public Health Notes

J ROSSLYN EARP, L R C P, D.T.P.H

New York State Department of Health

## Poliomyelitis 1939

AT THE time of writing poliomyelitis in epidemic form has visited this state in Buffalo and Batavia. Buffalo's recent history in regard to this disease has been somewhat remarkable. They had a big epidemic in 1912, then saw little or nothing of the disease until 1926 when there were approximately 140 cases. There was again an unusual prevalence in 1929, which was followed by ten years of relative freedom from this disease. Now they have about 100 cases (September 6), the epidemic having originated definitely in a small geographic focus in the neighborhood of the city hall and spread fanwise into the city.

Batavia with only one quarter the number of cases reported from Buffalo is a much smaller community and is really much more severely hit. At this time calculations show the attack rate in Batavia to be ten times that in Buffalo.

As usual, the first reported cases were nearly all paralyzed. As the epidemic has progressed, milder cases are recognized and at the present

time approximately 80 per cent of the reported cases have paralysis. In the use of comparative statistics epidemiologists prefer to compare the numbers of cases with definite paralysis and must always therefore ascertain with care whether or not paralysis is present in each case. Two epidemiologists from this department are at present assigned for special duty in the Buffalo district. Their work can be fairly classified as research for our ignorance of the epidemiology of this disease is still great. Every possible method of distribution of the virus is considered worthy of investigation. The Division of Laboratories and Research is of course, actively cooperating by searching for the virus.

The Division of Orthopedics is also lending its help in the Buffalo district. Its staff can collaborate with some confidence for the great importance of complete muscular rest in the acute stage is well recognized and the orthopedic surgeons do know how to support disabled limbs for the prevention of subsequent contracture.

## Argument for Breast Feeding

THE following argument is taken verbatim from the chapter on "Empathy" in a book by Fabius Zachary Snoop charmingly entitled *From the Monotremes to the Madonna*<sup>1</sup>.

All the time that the infant is suckling it can hear the regular throb the systole and diastole of the heart's rhythm and the slower heave and flow of the mother's breathing.

Certain sounds will always be beautiful. The rhythm of heart beat has danced its way into poetry. The gentle murmur of the breathing breast has crooned its song into music. All the joy of dancing and poetry and music were learnt during lactation.

The reaction against mawkishness in art is usually healthy if it is not overdone. But when poetry does not scan, when cubism dominates the world of art when music becomes syncopated

cacophony I wonder if these manifestations are inevitable in a generation whose mothers can sicker it vulgar to nurse their babies.

It seems ungracious to attack even one part of such a pretty theory, but I have to confess some doubts as to its validity as an explanation of syncopation in music for it is hard to conceive of syncopation without rhythm. May I offer to Mr Snoop albeit not too seriously an alternative hypothesis. The generation of jazz follows closely upon the adoption by mothers of the cigarette habit. Can it be that maternal extra systoles are responsible?

And who by the way is Mr Snoop? Presumably he is a Fellow of the Zoological Society of Great Britain. It is probable that he lives in Liverpool. Is there a reader who can unmask him?

## Unreported Immunizations

D. S. J. GORMLEY the Deputy Commissioner of Health of the city of Albany has carried out an interesting investigation of the diphtheria immunization status of babies born in that city in the period July 1-December 31 1938. The parents of 729 of these babies were questioned. Immunization was claimed on behalf of 277. No less than 220 of these were said to have been immunized by private physicians but the records

of the Department showed that only 54 of the 220 immunizations had been reported. This has led to consultation with the local physicians, many of whom had not known that such reports were desired. As a result, a large number of new reports for all age groups are being received. It may be that if the whole truth were known, our population is better immunized than we have supposed.

# Medicolegal

LORENZ J. BROSNAK

Counsel, Medical Society of the State of New York

## Death Action—Measure of Damages

**A** VERY interesting case was decided by the Court of Claims in this state a short time ago involving the amount recoverable as damages for the death of a patient in a hospital for the insane.\*

The administratrix instituted the proceeding against the State to recover damages for the death of the decedent caused allegedly by reason of the negligence of the State.

It seems that the deceased was admitted to a state hospital on September 11, 1937, suffering from syphilis meningoencephalitis, described as being synonymous with general paresis, and having symptoms of dementia praecox of the paranoid type. When on December 24 of the same year he attacked and injured a hospital attendant, he was confined in what was called the "disturbed ward," and there placed in a protective sheet to prevent further violence. In the next few days he became morose and his state of mind became more agitated. On December 29, he was observed as being restless throughout the day. That night he went to bed in a dormitory that was provided for forty-eight patients of like classification. These patients, with ten or twelve others located in adjoining rooms, were cared for by but two attendants from late at night until morning. It appears from the testimony upon the trial that for a period of an hour and a quarter these two attendants were engaged in changing sheets in the said rooms adjoining that occupied by deceased. During that period no one was watching over the forty-eight patients in the dormitory, the two attendants in the adjoining rooms being unable to observe what went on in the dormitory. When one of the attendants went in the dormitory at the end of that time, the deceased was found hanging with a bed sheet around his neck from a steel rod affixed to a door. He died as a result of strangulation.

There was also proof of tendencies for self-destruction, that the inmate had been particularly restless within a few hours of his death and that his general mental condition was known, not only to the dormitory attendants, but also to the hospital authorities.

The claimant produced a Dr. H., who, without having examined the deceased, testified that "with modern forms of treatment and treatment begun early" 50 per cent of patients having a condition such as deceased had would recover, 25 per cent would partially recover, and 25 per cent would never recover.

A number of the staff of physicians associated with the staff of the hospital, who had examined him there, testified, on the contrary, that deceased had no chance to recover. The Court summarized the testimony of one of such experts as to the effect that "the decedent's condition was marked and that he was progressively deteriorating, that he had a 4 plus spinal fluid and

a paretic colloidal gold curve and a paretic colloidal mastic curve and that those curves were of the strongest type seen in paresis. That a deteriorating type of syphilis of the brain does not recover because there is organic change in the brain, the brain is destroyed and brain tissue that is destroyed does not recover—"deterioration connotes finality." Another such physician characterized him as "beyond a shadow of a doubt" a patient who was "incorrigible" and who "would never recover sufficiently to be allowed outside the hospital."

The Court ruled that under the circumstances of the case the State was careless and negligent in not providing proper supervision for the inmates of the dormitory, and that the claimant was entitled to damages. The Court then proceeded to the consideration of the complex problem of the assessment of damages, and finally concluded that the only recoverable damages were the reasonable funeral expenses.

In the opinion so determining the amount of the recovery, the Court quoted as a guide from an earlier case as follows:

"The main elements to be considered are the age of the decedent, his health, habits, qualities, expectation in life, *earning ability*, income, the prospect of increase of income, the number, age, sex, situation and condition of those dependent on him for support, and his disposition to support them well or otherwise, and the like. Nothing can be allowed for sentiment, for grief, or for suffering, even when death was not immediate, but the precise question is *what were the probable chances of pecuniary benefit from the continuance in life of the decedent worth under all circumstances?*"

It was determined from the testimony concerning the deceased's health that the condition of deceased was incurable. With reference to the testimony the Court said:

"The testimony of the State's medical witnesses was based on personal examinations and personal contact with the decedent and with his hospital record, and is entitled to more weight and more favorable consideration than that of the witness, Dr. H., who simply made a general statement on the question of likelihood of recovery without any personal knowledge of the deceased's mental condition."

In reaching the conclusion so limiting the claimant's recovery, the Court said in part:

"What, under such circumstances, would be the pecuniary loss sustained herein? The deceased, had he lived, could make no contribution of a pecuniary nature to his widow and child."

"It is well settled that recovery for damages sustained by reason of one's death must be confined to the pecuniary loss and can only be awarded on proof of loss."

"The damages, if any, are to be calculated on a reasonable expectation of pecuniary benefit from the continuance of the life of the deceased."

While, at best, the measure of damages must be

\* *Dimitroff v. State*, 171 Misc. 835.

somewhat indefinite, it must be confined and limited to the *reasonable expectation* of the pecuniary loss. Upon the record herein there can be no reasonable expectation that the claimant suffered any pecuniary loss by reason of the death of her husband.

Taking all of the facts into consideration there is absolutely no proof that the claimant has sustained any pecuniary loss by reason of

the death of Andrew Dimitroff but on the contrary all of the facts are strongly negative of any reasonable probability that the demise of the decedent herein was the cause of any pecuniary injury within the terminology of the statute. It follows therefore that excepting for the reasonable funeral expenses the claimant has failed to sustain the burden of proof and to prove any recoverable damage herein.

### Claimed Injury to Eyes

A YOUNG man consulted a physician who specialized in ear nose and throat work with reference to complaints of a chronic ear discharge and a nasal obstruction due to a deviated septum. Treatment was rendered and he was advised to return for regular care. He did not return for several months and at that time he was also found to have a vasomotor rhinitis. The physician proceeded to treat the patient in the usual way with phenol placing an applicator in the nose. As the treatment was being concluded the patient fainted and the doctor's nurse assisted in reviving him with ordinary smelling salts. He soon was able to return to his home. The next day he returned with a mild reddened condition of his eyes that appeared to be a reaction to the phenol. Local sedatives were administered and a prescription was given him but he never returned thereafter for further treatment.

Instead he brought a malpractice action against the physician making the specific claim

that in reviving him from a fainting spell the defendant had caused ammonia to be used which damaged his eyes.

Upon the trial a physician was called who testified that he saw the plaintiff two days after the incident complained of and found a condition of conjunctivitis ulcers on both eyes edema, and a grayish color of the corneas requiring treatment over a period of months. The plaintiff attempted to attribute the use of ammonia to the defendant by testifying to an alleged admission made by defendant in reprimanding his nurse for the use of that substance and getting it in the eyes.

The defendant and his witnesses contended both that ammonia never did get in the eyes and also that the injuries claimed were a result of the infection from which plaintiff suffered at the time he was treated by defendant.

The issues in the case were submitted to the jury and a verdict was rendered in favor of the defendant.

### Burn Sustained During Operation

A SURGEON undertook to perform an operation upon a middle-aged woman at the hospital for the purpose of the removal of an extensive carbuncle from her neck. When she entered the operating room she had already been anesthetized and the nurses had already placed in position the endotherm apparatus which the doctor was to use in the operation. He proceeded with the operation which was apparently uneventful and in the course thereof used the endotherm both for incision and to coagulate the vessels.

After the operation the patient reacted promptly and soon complained of pain in the abdomen. A redness was found present at the site of application of the negative electrode of the endotherm apparatus. This redness even

tually developed into two sloughing areas which required care and dressings for several weeks.

An action was brought against both the physician and the hospital, charging that their malpractice and negligence had caused the plaintiff to sustain severe burns.

Upon the trial the plaintiff established and it was not disputed that the burns were sustained during the course of the operation. She did not however establish any proof of negligence attributable to the physician and at the close of the testimony on behalf of the plaintiff the complaint was dismissed. The dismissal was likewise granted with respect to the hospital it having been operated as a charitable non profit institution.

### COURSES FOR GENERAL PRACTITIONERS

The following courses for the academic year 1939-1940 are announced by the New York Post Graduate Medical School Columbia University

A variety of courses throughout the year on dermatology and syphilology interdepartmental courses on endocrinology occupational diseases and trauma and on physical therapy bacteri

ology on diagnosis therapy and research gynecology nine separate courses internal medicine twenty nine courses neurology and psychiatry eight courses ophthalmology two courses orthopedics two courses otolaryngology one course in two sections pathology one course pediatrics three courses and traumatic surgery one course to be repeated



# Across the Desk

## Why Do the People Imagine a Vain Thing?

**T**HAT question is a sticker. It was a sticker in the days when it was asked by the old writer of Scripture, and it is a sticker today.

In plain English, why do people act like idiots?

Why do they entrust their priceless life and health to cultists, charlatans, and quacks, when men are available with all the scientific training and skill that the ages of medical advance have been able to provide?

In everything else they show some sense. If a bridge is to be built, they send for a competent engineer, not for a sleight-of-hand performer. If the pig is sick, they send for a veterinarian, not for a phrenologist or an astrologer. They do not deck out the aging bull with electric belts or give him some sort of magic vibrations. They would not tolerate an ignorant engineer, an inaccurate accountant, or a quack chemist, yet, as a Texan medical writer remarks, they "drag their children off to the dangerous den of some quack or cultist. Can it be," he asks, "that human life is held in such cheap regard? Why aren't human lives as holy as those of domestic animals?"

### Helpless Dupes of Superstition

Idiots or not, we know that thousands of people, who seem intelligent in many other ways, act like helpless dupes of superstition when it comes to the vital matter of their health. "However much we may view with disdain, or attempt to disregard, the encroachments on scientific healing made by the various healing cults and by the patent medicine vendors, most of us realize that these unscientific ways of treatment enjoy a tremendous following among the public, and that an enormous annual expenditure of money flows into such non-medical channels." So observed Dr. Robert P. Knight, of Topeka, in an address before the Kansas Medical Society, and he added that "it should be a matter of pressing interest to the physician to try to understand how such things can be."

One explanation was given a few weeks ago in the *Journal of the American Medical Association* by Drs. Kerr, Giebe, Soley, and Shock, of the University of California Medical School. They point out that economic and social upheavals in the era since the World War have undoubtedly increased the number of patients who have anxiety states with symptoms that simulate those of serious organic diseases.

They figure, in fact, that at least one-third of the practice of most physicians consists of such patients. In spite of this formidable proportion, the average physician, they believe, "has little interest in the problems that this group presents, and is likely to label them neurosis, neurasthenia, anxiety neurosis or anxiety hysteria, and either to neglect the patient or to treat him in the easiest manner possible." Such treatment is often unsatisfactory, so "the patient shops around from doctor to doctor until, if he is fortunate, he finds one who will pay enough attention to his symptoms to recognize the physiologic causes as well as the fundamental psychologic factors. Perhaps the increasing popularity of

cults has depended largely on the fact that their practitioners at least do something for their followers even though the treatment is not rational."

### We Are But Children of a Larger Growth

Another explanation is brought forward by Dr. Knight. We must never forget, he says, that although our present civilization has reached a high scientific level, many of its members lag far behind, and "each member of society must make his own individual progress from childish magical thinking to whatever level of mature scientific thinking he is capable of."

Primitive man knew no other kind of thinking but magic and superstition, we are reminded. Children discard their childish misconceptions and superstitions only gradually and "even among us supposedly mature men of science there still may linger, in greater or lesser degree, remnants of this former fantastic, unscientific, superstitious type of thinking—who among us has no private superstitions?"

How, then, does this conflict between rational, scientific thinking and primitive, magical thinking affect the choice of physician or cultist by a sick person who wants to get well?

In the first place, every sick or ailing person becomes more childish, and, if he has any superstitions in his make-up, he tends to rely more on his supposedly forsaken magical beliefs the more sick he becomes. As a child his mother told him she would kiss his bruise and it wouldn't hurt any more, so when he falls ill his childish faith returns, and "he is ripe for the promise of cure of a special patent medicine or of a cultist who speaks reassuringly and authoritatively. Since a considerable proportion of the population remains at the level of ignorant, childish, magical thinking, it is not difficult to see that there will be an enormous response to magical medicines, magical procedures and convincingly spoken reassurances of cure."

### Yesterday and Today

It was only yesterday, by history's clock, that educated folks believed the King's touch cured scrofula, and even today many people of culture have minds open to stories of miraculous healing. Only yesterday, too, many believed in witchcraft, the evil power of malignant thoughts, and if evil thinking produces evil effects, why should not good thinking bring good effects?

Our race does not change its nature overnight, "and so," remarks our Kansan observer, "countless numbers of sick people needing scientific care rely instead on the good thoughts of Christian Science practitioners, or on the prayers and good thoughts of their fellow religionists, shunning the scientific remedies available to them."

The wilder the treatment, of course, the more it appeals to the childish mentality. Imposing-looking machines for electrical treatments, solemn "laying on of hands," mysterious manipulations, strange potions that must be potent because they are so nauseous, all these appeal to

the pitiful credulity that is almost begging to be duped that is asking for it, and eager to pay richly for being bamboozled.

In sharp contrast is the physician who knows his limitations and frankly and honestly says so. He admits at once that certain diseases still baffle him and all other men of medical science. For many ills he has no specific curative drug and can only provide supportive measures and trust to nature's healing power.

Not so the cultists. For them there are no frontiers, no unknown lands. They claim blithely to cure all human ills. How natural for the childlike mind with wishful thinking to turn from the frank and honest man of scientific medicine to the master of hocus-pocus who is ready to promise the impossible.

When the mind of man rises to higher levels, then the wiles of the medical sorcerer will lose their lure, but when we may ask, will that be? How long O Lord how long? Not this year evidently.

### What to Do, Here and Now?

Well then what can be done about it here and now? Something can be done believes Dr Knight, and he seems to agree very largely with the four doctors quoted above who give their views in the *J.A.M.A.* He thinks there are certain attitudes within the medical profession which drive people who seek medical aid away from physicians to magical unscientific healing practices. Medicine has advanced so fast that it has become scientific with a vengeance. The patient is looked at as a physiologic machine out of order and the physician is to discover the pathology and treat it. If he can find no pathology then the patient is certainly not sick, he is malingering or imagining he is sick or he is called a neurotic and dismissed from consideration. Despite all this however the patient still feels sick, and too often despairing of scientific medical aid he turns to the cultists who may allay or soothe his anxiety state, so that he feels better and trumpets abroad another miraculous cure.

Scientifically grounded physicians remarks Dr Knight, find it difficult to accept the fact that there is also a science of subjective factors in the patient, a science of psychological processes, and to realize that disturbed emotions can cause complaints referable to organs. Yet the

fact remains that there are a large percentage of their patients whose sickness can be understood and treated only in terms of these despised subjective factors. Indeed such a patient who has a physical illness is also psychologically sick at the same time and needs treatment from both aspects physical and psychological.

A higher science, or science added to science is needed here. This means we are told comprehending understanding and managing the magical, primitive beliefs wishes and fears of patients who either have never been able to discard these and espouse mature scientific attitudes or who under the stress of illness, have fallen back on their supposedly discarded childish ways of thinking and feeling. The cultists, it is true meet this need but are like the blind leading the blind.

### Find Out Why Patients Go Astray

Take the cults seriously advises Dr Knight—not only to combat their encroachments on medical practice, but better to study the psychological factors which lead some people astray to the cultists in preference to physicians. To attain to the higher scientific level physicians must paradoxically enough, abandon the materialistically scientific attitude which excludes study of emotional factors involved in patients illnesses and espouse a higher scientific attitude which tries to understand everything about the patient's behavior and feelings in addition to his structure and physiology. When that goal is reached every patient regardless of the unscientific character of his thinking behavior and complaints may expect to find scientific understanding and scientific treatment in his physician.

'Why do the nations rage?' was another sticker asked by the Psalmist at the same time that seems to fit our world just now. Perhaps the answer too is the same—they have the mentality of primitive man, and have not really emerged from the savage state. They rage and imagine vain things while those of higher and saner mentality have to suffer for it. And where the suffering is worst—and it promises to be a gory chapter—the call is never for the cultist the medical snake charmer spellblinder wizard or prestidigitator, but for the skilled physician and no peril has ever kept him from answering the call.

W S W

### A BURSTED BALLOON

Out in the West a trial balloon for socialized medicine was neatly burst when the California state legislature overwhelmingly voted down a proposal for compulsory health insurance remarks the *Wichita Medical Bulletin*. Despite the fact that the bill had the backing of Governor Olson and the strongest support and most intensive propaganda to support it the legislature killed the measure by a 48 to 20 vote.

The bill called for a program estimated to cost \$30,000,000 a year for medical benefits and hospitalization for employees earning less than

\$3,000 a year. Compulsory contributions from employees and employers, together with state funds would have been the means of financing the scheme.

Opposition to the proposal came from business men who argued that new taxes would be a burden which neither the people nor business could endure. Organized medicine in California saw in the bill a shackling of professional freedom with its accompanying loss of physician-patient relationship and consequent deterioration of medical practice.

# Books

Books for review should be sent to the Book Review Department at 1313 Bedford Avenue Brooklyn, N Y. Acknowledgment of receipt will be made in these columns and deemed sufficient notification. Selection for review will be based on merit and the interest to our readers.

## RECEIVED

**Operative Orthopedics** By Willis C Campbell, M D. Quarto of 1154 pages, illustrated. St Louis, C V Mosby Co, 1939. Cloth, \$12 50.

**The Art of Anaesthesia.** By Paluel J Flagg, M D. Sixth edition. Octavo of 491 pages, illustrated. Philadelphia, J B Lippincott Co, 1939. Cloth.

**Functional Disorders of the Foot. Their Diagnosis and Treatment** By Frank D Dickson, M D, and Rex L Diveley, M D. Octavo of 305 pages, illustrated. Philadelphia, J B Lippincott Co, 1939. Cloth, \$5.

**The Rectum and Colon** By E Parker Hayden, M D. Octavo of 434 pages, illustrated. Philadelphia, Lea & Febiger, 1939. Cloth, \$5 50.

**Nitrous Oxide-Oxygen Anaesthesia.** McKesson-Clement Viewpoint and Technique. By F W Clement, M D. Octavo of 274 pages, illustrated. Philadelphia, Lea & Febiger, 1939. Cloth, \$4.

**Clinical Diagnosis by Laboratory Methods. A Working Manual of Clinical Pathology** By James C Todd, M D, and Arthur H Sanford, M D. Ninth edition. Octavo of 841 pages, illustrated. Philadelphia, W B Saunders Co, 1939. Cloth, \$6.

**Aids to Dermatology and Venereal Disease** By Robert M B Mackenna, M D. Second edition. 16mo of 284 pages. Baltimore, Williams & Wilkins Co, 1939. Cloth, \$1 25.

**Sclerosing Therapy. The Injection Treatment of Hernia, Hydrocele, Varicose Veins and Hemorrhoids.** Edited by Frank C Yeomans, M D. Quarto of 337 pages, illustrated. Baltimore, Williams & Wilkins Co, 1939. Cloth, \$6.

**Textbook of Medical Treatment.** By various authors. Edited by D M Dunlop, M D. Octavo of 1127 pages. Baltimore, Williams & Wilkins Co, 1939. Cloth, \$8.

**The International Medical Annual. A Year Book of Treatment and Practitioner's Index.** Edited by H Letheby Tidy, M D, and A Rendle Short, M D. Fifty-seventh year. Octavo of 602 pages, illustrated. Baltimore, Williams & Wilkins Co, 1939. Cloth, \$6.

**The Treatment of Rheumatism in General Practice** By W S C Copeman, M D. Third edition. Octavo of 276 pages. Baltimore, Williams & Wilkins Co, 1939. Cloth, \$4.

**Manual of Urology** By R M LeComte, M D. Second edition. Octavo of 295 pages, illustrated. Baltimore, Williams & Wilkins Co, 1939. Cloth, \$4.

**Asthma.** By Frank Coke, F R C S. Second edition. Octavo of 266 pages, illustrated. Baltimore, Williams & Wilkins Co, 1939. Cloth \$4.

**The Harvey Lectures. Delivered under the Auspices of The Harvey Society of New York, 1938-1939. Series XXXIV. Octavo of 279 pages, illustrated. Baltimore, Williams & Wilkins Co, 1939. Cloth, \$4.**

**Essentials of Fevers** By Gerald E Breen, M D. Duodecimo of 274 pages, illustrated. Baltimore, Williams & Wilkins Co, 1939. Cloth, \$3.

**Eye, Ear, Nose and Throat Manual for Nurses.** By Roy H Parkinson, M D. Fourth edition. Octavo of 243 pages, illustrated. St Louis, C V Mosby Co, 1939. Cloth, \$2 25.

**Forensic Medicine** By Sydney Smith, M D. Sixth edition. Octavo of 654 pages, illustrated. Boston, Little, Brown and Co, 1939. Cloth, \$7 50.

**Treatment in General Practice. The Management of Some Major Medical Disorders.** Vols I and II. Octavo. Boston, Little, Brown and Co, 1939. Cloth, \$7 50.

**Brucellosis in Man and Animals.** By I Forest Huddleson, D V M. Octavo of 339 pages, illustrated. New York, The Commonwealth Fund, 1939. Cloth, \$3 50.

**Recent Advances in Medical Science. A Study of Their Social and Economic Implications.** By Sir Edward Mellanby, M D. Duodecimo of 62 pages. Cambridge. At The University Press, New York. The Macmillan Co, 1939. Paper, \$75.

**Illustrations of Regional Anatomy** By E B Jameson, M D. Second edition in seven sections. Octavo. Baltimore, William Wood & Co, 1937 and 1939. Paper, \$15 complete set.

**Diseases of the Skin** By Richard L Sutton, M D, and Richard L Sutton, Jr, M D. Tenth edition. Quarto of 1549 pages, illustrated. St. Louis, C V Mosby Co, 1939. Cloth \$15.

**The New International Clinics. Original Contributions. Clinics, and Evaluated Reviews of Current Advances in the Medical Arts.** Edited by George M Piersol, M D. Volume III, New Series Two. Octavo of 332 pages, illustrated. Philadelphia, J B Lippincott Co, 1939. Cloth, \$3.

**Symposium on the Synapse** By Herbert S Gasser, Joseph Erlanger, Detlev W Bronk, Rafael Lorente De N6, and Alexander Forbes (Repr from *J Neurophysiol* 2 361-472 (1939)). Quarto, illustrated. Springfield, Charles C Thomas, 1939. Paper.

**From Head to Foot.** By Armitage Whitman, M D. Octavo of 262 pages. New York, Farrar & Rinehart, Inc, 1939. Cloth, \$2 50.

**Pathogenic Microorganisms. A Practical Manual for Students, Physicians and Health Officers** By William H Park, M D, and Anna W Williams, M D. Eleventh edition. Octavo of 1056 pages, illustrated. Philadelphia, Lea & Febiger, 1939. Cloth, \$8.

**Microbiology and Pathology** By Charles F Carter M D Second edition Octavo of 755 pages illustrated St. Louis C V Mosby Co 1939 Cloth \$3.25

**Principles of Chemistry** An Introductory Textbook of Inorganic Organic and Physiological Chemistry for Nurses and Students of Home Economics and Applied Chemistry with Laboratory Experiments By Joseph H Roe, Ph D Fifth edition Octavo of 503 pages illustrated St. Louis C V Mosby Co 1939 Cloth, \$3

**Practical Obstetrics.** By P Brooke Bland M D and Thaddeus L Montgomery M D Third edition Quarto of 877 pages, illustrated Philadelphia F A Davis Co 1939 Cloth \$8

**Organized Payments for Medical Services.** A Report Prepared by Bureau of Medical Economics of the American Medical Association. Octavo of 185 pages. Chicago American Medical Association 1939 Paper

**Factual Data on Medical Economics.** Bureau of Medical Economics of the American Medical Association. Quarto of 67 pages, illustrated Chicago American Medical Association 1939 Paper

**Materia Medica, Drug Administration and Prescription Writing.** By Oscar W Bethae, M D Fifth edition. Octavo of 577 pages, illustrated. Philadelphia F A Davis Co 1939 Cloth, \$5

**Clinical Tuberculosis.** Edited by Benjamin Goldberg, M D In two volumes. Second edition. Quarto illustrated Philadelphia F A Davis Co 1939 Cloth \$15

**Die Biologische Reaktion.** Eine Funktionelle Analyse und Synthese Biometrischer Werte zur Zahlenmässigen Erfassung von Allergie Allgemeiner Resistenz, Spezifischer Resistenz Krankheitsintensität Extensität Aktiver Herde Immunität. By Dr O H. Bucher Trümpler and Dr C. C. Hofflin Karwatzki Quarto of 262 pages illustrated Bern Medizinischer Verlag Hans Huber 1939 Cloth Swiss francs 42.80

**Medical State Board Examinations. Topical Summaries and Answers.** An Organized Review of Actual Questions Given in Medical Licensing Examinations Throughout the United States By Harold Rypins M D Fourth edition Octavo of 448 pages Philadelphia J B Lippincott Co 1939 Cloth, \$4.50

**Problems of Aging.** Biological and Medical Aspects Edited by B V Cowdry A Publication of The Josiah Macy Jr Foundation. Octavo of 758 pages illustrated. Baltimore. The Williams & Wilkins Co 1939 Cloth \$10

**Peripheral Vascular Diseases. Diagnosis and Treatment.** By William S. Collens M D and Nathan D Wilensky M D Octavo of 243 pages illustrated Springfield Charles C Thomas 1939 Cloth \$4.50

**The Infant and Child in Health and Disease With Special Reference to Nursing Care** By John Zahorsky M D and Elizabeth Noyes, R.N. Second edition. Octavo of 496 pages illustrated St. Louis, C V Mosby Company 1939 Cloth \$3

**Cardiovascular Diseases. Their Diagnosis and Treatment.** By David Scherf, M D and Linn J Boyd M D Octavo of 458 pages St. Louis, C V Mosby Co 1939 Cloth \$0.25

## REVIEWED

**Endoscopia Urinaria.** By Dr A Puigvert Gorro Quarto of 228 pages, illustrated Barcelona, Salvat Editors 1938 Cloth

It is not often that we have the pleasure of handling so beautiful a book as that which Dr Puigvert Gorro has put before us. In *Endoscopia Urinaria* we have a practical treatise on cystoscopic and endoscopic diagnosis and treatment of urinary affections, which by the comprehensiveness of its contents by its careful attention to details and by the artistic form of its presentation, does high honor to its author and to urologic science in Spain.

The work is the more welcome as some time has passed since any book has appeared on the subject of cystoscopy so that this volume enjoys the advantage of presenting all the newest methods and ideas that have come to the front since any previous book has been written along these lines. And since without this fundamental procedure in urology it is impossible to reach any exact diagnosis in vesical and renal affections, an up-to-date work like this one embracing all the essentials of cystoscopy and the larger field of urinary endoscopy is sure to be widely appreciated.

In his 228 large quarto pages the author has not only discussed every detail of the cystoscopic procedure, but has also in successive chapters,

given a description of all the affections in which this type of exploration must be carried out. In 25 chapters he reviews the history of cystoscopy the development of its instrumentation the details of technique, the interpretation of the findings and gives a description of the affection for which cystoscopy is being done in each case. In many instances he also discusses the etiology of the particular conditions and in some the mode of application of the appropriate endoscopic treatment. This is followed by a minute description of the details of ureteral catheterization of biopsy and of litholapaxy.

All these subjects are illuminated by a series of 52 full page colored plates revealing graphically and with exquisite delicacy the pathologic conditions as they appear in the cystoscope and as they are described in the text.

The book contains a foreword by Professor Marion and is accompanied by a comprehensive bibliography of the subject. The work will be appreciated not only in countries in which Spanish is spoken but by students of Spanish everywhere, as well as by others who love a beautiful book. A hasty glance through the book creates the impression that no expense has been spared to make it not only a scientific compendium but also a work of art.

ROBERT GUTIERREZ

**Laboratory Manual of Hematologic Technic.** Including Interpretations By Regena Cook Beck, M D Octavo of 389 pages, illustrated Philadelphia, W B Saunders Company, 1938 Cloth, \$4

The recent appearance of several excellent books and atlases on hematology would seem to preclude the publication of another book on this subject. However, Dr Beck's book is written from an entirely different point of view, that is, not for the specialist but for the technician and student technician. Her thorough and comprehensive presentation of hematology will be found an excellent introduction to the subject by those for whom it is intended, though the specialist may find little of special interest to himself. The arrangement of the subject matter is good, and the blank tables at the end of the various sections dealing with the technic of blood counting and hemoglobin determination will be found convenient by the student for recording his daily work. The list of questions at the end of each chapter is stimulating, and serves as a good review of the material covered in that chapter.

As the author points out in the preface, for many procedures a number of alternative methods have been advocated, and in the book only the technic used in the author's own laboratory is described. While this has certain advantages, when the method used is unusual, it would have been better also to include a description of a more standard technic. For example, in describing the technic of blood grouping, the writer advocates the use of prepared slides with 2 dried drops of typing sera, A and B, respectively. This technic will be found dangerous, particularly for beginners, since the high concentration of the sera is favorable to pseudoagglutination.

In general, where the technic of a particular test is very elaborate and one which the technician would probably never have occasion to use, merely the principle of the method is given. This wise procedure should have been followed also when describing the technic of grouping dried blood stains, since the reader may derive the false impression that the inadequate description given is all that is entailed in the test. In fact, the grouping of dried blood stains is a delicate and difficult procedure, and one that should only be relegated to experts in the field.

The normal limits for the fibrinogen content of the blood are given as 350 to 750 mg/100 cc, which is higher than the limits (200 to 350) given by such authors as Peters and van Slyke. The reason for the higher and more variable limits can be found in the method of washing the fibrin clot, which, according to the technic in Beck's book, is first rolled into a ball and then washed. The preferable technic is to wash the loose fibrin clot five or six times before rolling it into a compact mass, since once the fibrin is rolled up it is practically impossible to wash out the serum albumin and globulin trapped within the clot. At any rate, the determination of fibrinogen in the blood is rarely called for in the clinical laboratory.

On the whole, the book is very pleasingly written and the illustrations are clear and instructive. This book should be found valuable for instruction in schools for technicians.

A. S. WIENER

**The Spectacle of a Man** By John Coignard. Octavo of 252 pages New York, William Morrow & Company, 1937 Cloth, \$2.50

This novel is an attempt to analyze the inhibitions and conflicts of a highly nervous individual in the grip of obsessions and feelings of inferiority—one who is incapable of decisions and torn in his emotions toward the women who come across his path. As a man who has unintentionally wrecked his own life and that of the woman he loves, he deserves our sympathy. His doubts and indecisions are well brought out. In comparison with him, his lady-love stands out as a wholesome being, and is altogether far more interesting than the hero of the romance. He moralizes too much. The brutal way in which he throws off Mary, and the new attachments he forms are in keeping with his character. He learns a few things from psychoanalysis, but remains essentially a neurotic. Pity the poor woman who will next take up with him.

Many things in the book appear artificial. Intelligent and adult people do not converse in the manner that these characters do. One would not expect that a proud woman, conscious of her charms and worth, would fall so low as to beg a man to accept her on his own terms. As to the analysis, the author does not disclose to us the actual relationship between the improved condition of the patient and the psychoanalytic treatment. We are reminded of a book by Sienkiewicz—*Without a Dogma*—which was on a similar theme, but with quite a different treatment. The writer is a good storyteller and doubtlessly will be heard from again.

JOSEPH SMITH

**Maternity Care in a Rural Community.** Pike County, Mississippi, 1931-1936 By Maxwell E. Lapham, M D 16 mo of 65 pages New York, The Commonwealth Fund, 1938 Paper, 25¢.

Obstetricians interested in statistical analyses of our puerperal death rate will find this paper-covered booklet valuable and important. In Pike County, largely rural, half Negro, nearly half of the controllable deaths were due to the patient herself or her family. The maternal death rate was considerably higher than the national figures, and higher than the rate for the state of Mississippi.

CHARLES A. GORDON

**The Pathology of Diabetes Mellitus** By Shields Warren, M D Second edition. Octavo of 246 pages, illustrated Philadelphia, Lea & Febiger, 1938 Cloth, \$4.75

This book fills a gap in the literature on diabetes. The author seems to have put in a lot of practical first-hand information on the actual pathologic changes of every organ and tissue of the diabetic. It is a great piece of work with no superfluous padding. The descriptive material for illustrations is all derived from active clinical cases, followed up by surgical and post-mortem specimens.

The reviewer finds this a very good book.

MORRIS ANT

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## *Editorial*

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### Dr James H Borrell

The Medical Society of the State of New York has lost a trusted servant. As we go to press the news reaches us of the death of Dr James H Borrell, the President-Elect of our Society.

Dr Borrell was born in 1891. Graduated from the University of Buffalo School of Medicine in 1914, he practiced his specialty of urology in the city of Buffalo.

In our circles he was well known. He served on various state committees, on the Council, and at the last session of the House of Delegates he was elevated to the office of President-Elect.

He was a quiet, conscientious man, wise in counsel, and with undaunted executive ability.

He served Erie County well, and all of us were prepared to expect a fine consummation of his career when he would have become the Chief Executive of our organization next year.

We shall miss him, and remember him, too.

### Military Medicine

The past few years' shortage of qualified physicians in Germany has been sharply intensified by war. Reports seeping out of neutral countries indicate that there is a serious deficiency of skilled medical care in the Third Reich. Since mechanization has not yet resulted in the elimination of man power as an essential factor in warfare, the amount and quality of available medical service are bound to have an important influence on the outcome of a prolonged war.

There is still reason to hope that the United States can stay out of the conflict now raging in Europe. Nevertheless, the country is determined not to be caught unawares should its vital interests be threatened, and military preparedness is being pushed to a degree

hitherto unprecedented in peacetime Mobilization of the nation's medical resources is an indispensable part of this preparation

In certain respects, wartime medicine differs sharply from the treatment of the sick in peace In addition to the usual diseases of civilian life, there are the terrible and unpredictable ravages of widespread trauma Horrible, fantastic wounds are inflicted which must be healed with a minimum of disfigurement and functional disability Rehabilitation is at least as important as the preservation of life—for the good of the nation as well as of the individual

The physician who leaves private practice for military service is confronted with many problems rarely encountered in routine private practice Traumatic lesions of fearful and infinite variety, surgery under crude emergency conditions, the consequences of poison gas demand special training which most practitioners do not possess Under the barbarous conditions of modern warfare, even the civilian physician must be trained in military medicine, for the civilian population is no longer exempt from direct attack

To physicians, to whom the preservation of life is a sacred duty, war is a blasphemous anathema Should it come, however, American medicine must be prepared to bind up its wounds and heal the physical and mental sickness it leaves in its wake

### Premature Claims

With 135,000 physicians in private practice in this country, it might reasonably be expected that they would exert some influence on the course of public health After all, whether in charitable institutions or in private practice, they perform the bulk of individual, diagnostic, and therapeutic work

The *United States Public Health Reports* for July 14, 1939, however, find it an easy feat to "blackout" completely the activities of 135,000 private practitioners Commenting on a new low level for general and infant mortality achieved in 1938, the Reports give the major credit for this accomplishment to "expansion of the public health program, improved state and local health services and intensive public health efforts directed against specific diseases"

As Dr Terry M Townsend, President of the Medical Society of the State of New York, points out in a recent speech at Oswego, New York, the Public Health Reports have not a single word to say about the medical profession's contribution to the steady reduction of mortality in the United States All the brilliant diagnostic, therapeutic, and preventive service rendered by the privately practicing profession is totally lacking in merit and does not warrant the slightest acknowledgment in the judgment of the editors of the *United States Public Health Reports*

Of course, as Dr Townsend further points out, there are reasons for this failure to acknowledge the medical profession's enormous contribution to public health. Using the vaunted new low in mortality as a steppingstone, the Reports proceed to urge the "extension of public health protection and provision of medical care to all"—in other words, complete state medicine.

What are the figures on which the *United States Public Health Reports* base the demand for such a drastic change? The 1938 low in general mortality, as Dr Townsend observes, represents a gain of less than 1 per cent. In infant mortality the improvement is somewhat less than 2 per cent. The slight progress represented by these figures, which may easily be canceled by a rise this year or next, hardly furnishes sufficient basis for a radical reform of our system of medical care, particularly since the Reports themselves admit that "the factors involved in achieving a new minimum death rate cannot be evaluated without a more detailed analysis of specific rates." Slight as the gains cited by the Reports are, it is somewhat premature for the public health services to claim all the credit for them.

### And Still They Come

It may appear somewhat monotonous to comment continually in our editorial columns on sulfanilamide. But we, who fine-comb the literature so that we may bring to your attention notable achievements in medicine, and more particularly practical work that will aid the doctor in his daily practice, find that the *cause célèbre* at the present moment is *sulfanilamide*. We are convinced that the overwhelming amount of literature on this drug is the result of a scientific urge to acquaint others with the experiences encountered in the use of this relatively new chemical compound.

From the numerous medical publications, one can almost pick at random and find some report on sulfanilamide therapy. In the September issue of the *American Journal of Medical Sciences* alone there are two reports. Smith and Curtis<sup>1</sup> record that this medication failed in the treatment of ulcerovegetative endocarditis in a patient suffering from Brucellosis, despite other reports to the contrary, and Heckel and Hori<sup>2</sup> contradict prior observations that the administration of sulfanilamide influences spermatogenesis. As we read further, Adriani,<sup>3</sup> in commenting upon surgical anesthesia, suggests that the combination of sulfanilamide and barbiturates should be avoided, since, in his experiments, a subanesthetic dose

<sup>1</sup> Smith, K. M. and Curtis, A. C. *Am. J. M. Sc.* 1938: 342 (Sept.) 1939

<sup>2</sup> Heckel, N. J. and Hori, C. O. *Am. J. M. Sc.* 1938: 347 (Sept.) 1939

<sup>3</sup> Adriani, J. *J. Lab. and Clin. Med.* 24: 1066 (July) 1939



may, under such condition, become anesthetic and often lethal. Finally—and this will convince you that there is so much more to be learned about this drug—we quote the Foreign Letter from London in the September 23 issue of the *J A M A* <sup>1</sup>

“The fact that sulfonamide derivatives, by producing methemoglobin or sulfhemoglobin, may interfere with oxygen exchange of blood and so prove a danger to aircraft pilots is a subject of correspondence in the *British Medical Journal*. Dr E P Mackie, medical adviser of Imperial Airways, saw a pilot who was suffering from symptoms of severe anoxemia as a result of flying at an altitude of only 13,000 feet. It was found that he had been taking full doses of sulfanilamide for tonsillitis. It is stated that a full dose of one of the sulfonamide derivatives taken shortly before flying, lowers an aviator's ‘ceiling’ by about 5,000 feet. Mackie therefore recommends that passengers, and more particularly members of the crew of an aircraft, should be warned against taking these drugs within a few days of flying.

‘Dr A F Rook, Central Medical Establishment, Royal Air Force, refers to a personal communication received by him nearly two years ago from Dr V E Lloyd, who found symptoms of intolerance from sulfanilamide in lorry drivers, which sometimes affected their judgment of speed and distance. Instructions were immediately issued to all medical officers of the Royal Air Force that no one should be allowed to fly, or drive automobiles while taking these drugs. Similar cases have been observed in America and Germany.”

### Orange Juice and Calcium Metabolism

It is trite to state that the calcium salts exert an important influence on the life processes of tissues in general, and on muscle, bone, and nerve in particular. During the growth period, calcium must be present in food in sufficient quantity so that bone formation may proceed properly. More important for metabolic activity, however, is the distribution of calcium in the blood in normal concentration in both diffusible and nondiffusible forms. To a large extent, this is controlled and made possible by vitamin D and by the hormone of the parathyroid glands. It is still not clearly understood what the normal relationship between these two factors is, since the former favors absorption of the calcium intake, while the latter mobilizes this element from its storehouse in bone <sup>2</sup>

Lanford's work on the effect of orange juice in facilitating the assimilation of calcium is a further step in our mastery of the bio-

<sup>1</sup> *J A M A* 113 1237 (Sept 23) 1939

<sup>2</sup> Howell W H Text-Book of Physiology, Thirteenth Edition, W B Saunders, Philadelphia, 1937, p 1011

chemical factors that promote growth<sup>1</sup> Despite the suggestion of Rubner,<sup>2</sup> who claims that there must be some special mechanisms of chemical nature in the skeletal tissue which enhance its growth, even at the expense of other tissues, it is still not clear how the calcium and phosphorus in the blood are deposited in the bone during the process of calcification The studies thus far in this field have concerned themselves with the effects produced by "deficiencies" On the other hand, Lanford's observations in a series of controlled experiments in young growing rats furnish a new approach to the problem of calcium in relation to growth When the diet of her experimental animals was supplemented by the addition of orange juice to the basic diet, the rapidity of growth was increased fully 10 per cent In addition, it was determined by volumetric estimation of the ash of the carcass, less the gastrointestinal tract, that those rats that had been given orange juice stored in their bodies a distinctly higher percentage of calcium provided in the food than their litter-mate control animals Of even more significance is the fact that some of the rats fed with orange juice were given a lower calcium intake than the controls, but they nevertheless assimilated a greater amount and higher percentage of food calcium than those given only the basic diet Thus it seems that the clinical observation of Cheney and Blunt<sup>3</sup>—that orange juice in some way favors the retention of calcium by growing children—has been given substantiation

Lanford makes no comment concerning the factor in the orange juice that might be responsible for this ability to increase the assimilation of ingested calcium, beyond hinting that it may have some relation to the citrates and citric acid present in the fruit In any event, it is evident that parahormone and vitamin D play no part, therefore, we have here the initiation of a new phase in the investigation of growth

<sup>1</sup> Lanford C S.: *J Biol Chem.* 130: 87 (Sept.) 1939

<sup>2</sup> Rubner: *Das Problem der Lebensdauer*, etc. Berlin 1908

<sup>3</sup> Cheney M S and Blunt, K.: *J Biol. Chem.* 66: 829 (1925)

### Current Comment

In a world which is becoming more and more machine-made and mechanized, in which the individual tends to become more and more swamped in the mass, it seems to me a good thing, indeed an imperative duty, whenever we can, to keep our profession, and the rights and privileges and welfare of the individual, free from the shackles of standardization—a condition which is the inevitable result

of government control Nowhere is such an effort so necessary as in those countries which profess to believe in freedom of thought and action, and dislike the growth of the authoritarian idea."—Dr Alfred Cox, former secretary of the British Medical Association, speaking before the Royal Society of Medicine in Great Britain, and quoted in part in the *J.A.M.A.* of July 1

" I say to you in all sincerity and with all the earnestness at my command, that the health achievements of Wisconsin and of this nation have not been made, as some would have you believe, in spite of our failure to adopt European systems of compulsory sickness insurance, but because of our foresight in avoiding the very concepts of control that are inherent to such governmentally systematized services

"The social purchase price for the adoption of such legislation is the surrender for all time of our concept of education for health and in times of illness, our concept of the sick man, woman or child as an individual with highly individualistic reactions requiring, deserving, and securing a personalized service"—From a recent statement of Mr Crownhart, secretary of the Wisconsin State Medical Society

. . .

"During the past few years the economic aspects of medical practice have assumed an ever-increasing proportion of both medical and lay discussions. The popularity of this subject has resulted in the accumulation of a wealth of data and opinions that have inevitably led to confusion about the basic nature of the issues involved. Opinions based on emotions, rather than on facts, data that reflect the hopes of the authors rather than the actual state of affairs, and conclusions that are not wholly justified by the arguments presented have been literally hurled at the populace with the hope of swaying public opinion toward or against a particular objective

"Radical changes though sometimes necessary are rarely desirable. The dictum of the 'inevitability of gradualness' has operated in more than one phase of life to solve grave and complex problems that face civilized people. In the heat of every discussion on medical economics two facts must always be borne in mind (1) the trend of American politics seems to run toward protection of the 'forgotten man' from most of the vicissitudes of life, and (2) the prime factor in every phase of medical economics is not the physician

but the patient. He, the consumer, is 'always right.'"—"The Controversial Issue of Compulsory Health Insurance" as discussed in the *Bronx Medical Bulletin*

. . .

"The commercial spirit is abroad in the land. I am glad to believe that there is a large and noble body of physicians faithful to the highest and most inspiring traditions of the past, whose eyes the spirit of commercialism can never blind to the sacred duties they owe to their patients"—Written by Dr Frank E Bunts in the *Bulletin* of the Cleveland Academy of Medicine

. . .

"There is a definite need for a layman who is an outstanding writer and commentator to assist the organized medical profession. Such a man could carry the message of better understanding to the public at large, in a forceful manner that would be of untold value to the medical profession and to the public. This is in no way a criticism of the splendid work of our medical officers

"On several occasions that fiery and fearless columnist Westbrook Pegler has championed the physicians and lambasted the government for its unfair attack upon them

"Boake Carter also wrote a forceful editorial that was published in his column early this year that was a masterpiece.

"It is a certainty that there has been no spreading of the news over the front pages of the newspapers that the government lost its suit before Justice Procter

"There has been no effort on the part of Thurman Arnold to play fair, and following the decision he immediately tried new methods of persecution

"It is up to the medical profession to renew the faith of the public and to educate them as to some of the why's and wherefore's of the political persecutions

"Let us hire an effective lay mouthpiece"—A suggestion from Dr C P Dyer, manager-editor of the St Louis County Medical Society *Bulletin* in its issue of September 22

# A STUDY OF THE STILLBIRTH AND NEONATAL DEATH PROBLEM

Based on an Analysis of All of Rochester's Cases in 1936

HERBERT C. SOULE, M.D., Rochester, New York

**B**RIEFLY stated, the problem is that too many babies are born dead or die in the first few days of life. A few figures for the year 1936 from the United States Bureau of Census demonstrate the gravity of our problem. Of the 122,535 babies under 1 year of age who died that year, over one half of that number, 63,854, died in the first few days of life—the neonatal death group. A still greater number, 73,735, were born dead and recorded as stillbirths. A third group of uncounted thousands were stillborn but too immature for official recording. Excluding this last group, over 137,589 babies died in the United States from causes associated with birth. That same year we were shocked by the number of deaths caused by automobile accidents, a total of 37,500. Counting the 12,200 mothers who died of causes associated with childbirth with our list of babies, the number becomes 150,000 deaths for 1936—four times the size of the automobile record. How many of these deaths are avoidable?

Faced with the responsibility and the challenge to reduce this mortality, the physician may well ask a number of questions, such as: What are the principal causes of death at this time? What can be done about eliminating them? How does the United States record in this matter compare with that of other countries? What progress in reducing the death rates has been made in the past in the United States, and in New York State? What can a physician do in his community to reduce these rates? What is the responsibility of the medical educator?

In the present state of our knowledge, many of these questions cannot be satis-

factorily answered, and the short time available this morning permits us to make only very brief answers. Also, in discussing a problem lying, as it does, so largely in the province of the man who brings the baby into the world, I feel very keenly my complete lack of practical obstetric experience. Certainly the pediatrician does not see the stillbirth, nor the baby dying on the first or second day. The following well known facts indicate that this is a problem lying largely in the time interval of the first few hours after birth. Fifty to 75 per cent of the babies dying under 1 year of age die in the first month. Of the babies dying in the first month, two thirds usually die on the first day and four fifths by the end of the second day.

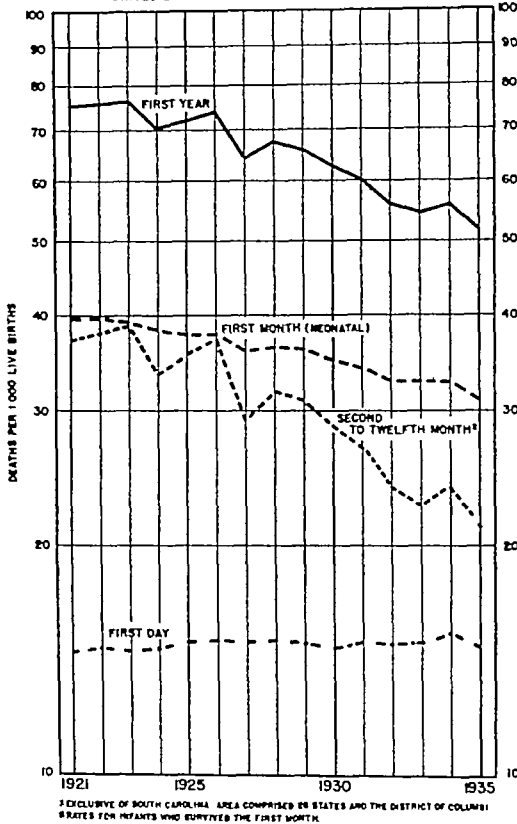
At the suggestion of the Rochester Maternal Welfare Committee, I attempted a review of all of the city's stillbirths and neonatal deaths for the year of 1936. This study forms the basis of my answers to the above questions, supplemented to a very great extent by the articles of others on the causes of stillbirths<sup>1</sup> and neonatal deaths,<sup>2</sup> and by statistics from the United States Bureau of Census, from the Federal Children's Bureau, from the New York State Division of Vital Statistics, and from the Rochester Health Bureau.

Before presenting the analysis of my data, I must define two terms that are subject to different interpretations—stillbirth and neonatal death. "Stillbirth" is defined by the American Public Health Association as follows: "A stillborn child is one which shows no evidence of life after complete birth. Birth is considered complete when the child is altogether outside the body of the mother, even if

*Read at the Annual Meeting of the Medical Society of the State of New York  
New York City May 10 1938*

CHART 1

MORTALITY IN CERTAIN PERIODS OF THE FIRST YEAR OF LIFE, 1921-35  
UNITED STATES BIRTH REGISTRATION AREA OF 1921<sup>1</sup>



<sup>1</sup> EXCLUSIVE OF SOUTH CAROLINA AREA COMPRISED IN STATES AND THE DISTRICT OF COLUMBIA  
RATES FOR INFANTS WHO SURVIVED THE FIRST MONTH

the cord is uncut and the placenta still attached" The age base used is twenty weeks or more gestation

A neonatal death in this study means one occurring in the first month of life. Our findings are comparable with those that cover only the first two weeks, as 90 per cent of our neonatal deaths were in that period

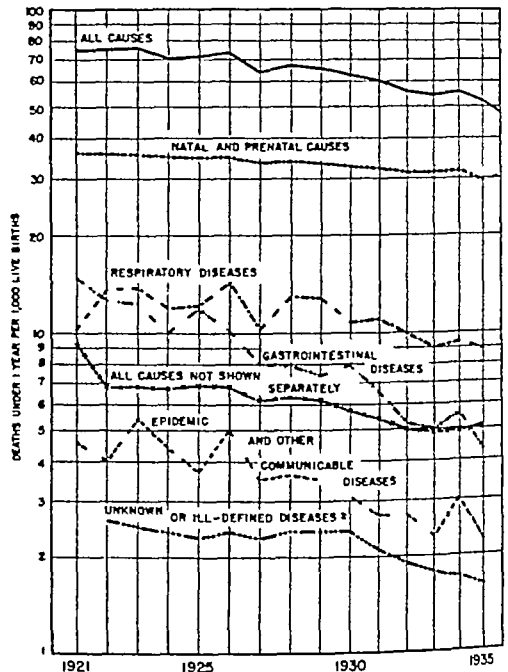
A few comments on the reliability of my data must be made. Eighty-three per cent of my cases were born in the eight Rochester hospitals, so the hospital records, although of varying accuracy and completeness, were consulted. A considerable number of the records were incomplete, especially in respect to the prenatal care of the mother and a description of the baby and his subsequent course. In some cases only the nurses' notes revealed that a baby had died.

Autopsies were secured in 43 per cent of the cases, and frequently, although

well done, they were still unsatisfactory in that they lacked careful examinations of the head for intracranial injury, and in that there were too few microscopic examinations of the lungs. Diagnoses of patent foramen ovale by one doctor in 90 per cent of all his autopsies, and of intrauterine asphyxia in the same percentage of autopsies by another, make one wonder if the interpretation of the find-

CHART 2

INFANT MORTALITY FROM SPECIFIED GROUPS OF CAUSES, 1921-35  
UNITED STATES BIRTH REGISTRATION AREA OF 1921<sup>1</sup>



<sup>1</sup> EXCLUSIVE OF SOUTH CAROLINA AREA COMPRISED IN STATES AND THE DISTRICT OF COLUMBIA  
<sup>2</sup> NOT SHOWN SEPARATELY IN 1921

ings are done by men familiar with infant pathology

Another difficulty experienced with my material in attempting to decide what was the principal cause of death in a particular case is often presented when multiple causes are found in the mother and in the child. Even with the help of a good autopsy the problem was often confusing.

The statistics from Washington and Albany and the local health bureau are also subject to serious criticism, as they are based on the diagnosis of causes of death classified according to the rules of the International List of Causes of

Death, as well as the Manual of Joint Causes

As Dr Bundesen has well pointed out, this brief list of five causes is often misleading and inaccurate.<sup>2</sup> It is misleading because the true cause of death is often not mentioned, while an unimportant factor is placed first, such as a minor congenital anomaly, prematurity, or an unimportant birth injury

The shortcomings of this classification are recognized, and a subcommittee of the American Committee on Maternal Welfare has made recommendations to the United States Bureau of Census

A few charts and graphs will give us a quick picture of the progress being made in reducing the stillbirth and neonatal mortality in the United States, New York State, and Rochester

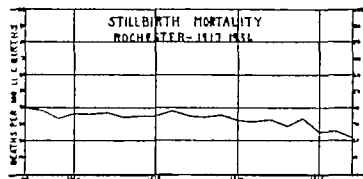
The first two charts (Charts 1 and 2) from the Federal Children's Bureau show for the United States, from 1921 to 1935 that while the infant mortality rate (the number of babies dying under 1 year of age per 1,000 live births) has fallen in fifteen years 30 per cent—from 75 to 56 the neonatal death rate has fallen only 20 per cent, from 40 to 32

Chart 2 shows the various groups of causes of death in children under 1 year, and is chiefly significant in our study in indicating, first, the paramount importance in the first year of the natal and prenatal causes (being three times as frequent a factor in causing death as the next largest group, i.e., respiratory disease), and, second, the relatively slight reduction in fifteen years of the neonatal death rate.

The reduction in the stillbirth rate (the number of babies born dead per 1,000 live births) in the United States has been slight in fifteen years—only 8 per cent—from 39 to 36 and it has changed very little in the last few years. There is room for much improvement here

The reduction in these death rates for New York State has not been arranged graphically. The New York stillbirth rate of 38.9 for 1936 is a little lower than the federal figure, and in twenty years

CHART 3



represents a drop of 0.5 per cent. The New York neonatal rate is also a little lower than the federal, being 29.6, a drop of 28 per cent in twenty years

The Rochester data on these death rates have been arranged in a number of graphs covering twenty-one years from 1917 to 1937

Chart 3, showing the reduction in stillbirth rates, demonstrates real and considerable progress—a drop of 45 per cent—from 40 to 22—a very low rate. This low rate should encourage us in our belief that stillbirth rates are reducible in the country as a whole and that too much pessimism is not justified. If Rochester can reduce its stillbirth rate, other cities can also. Of course, statistics are tricky and Rochester's large reduction is based on a very good showing in one year—1937. A fairer way is to compare the 1917 rate with an average for the last five years, which is 27 and that still gives a 32 per cent reduction, or an average of 24 for the last three years—a 40 per cent reduction

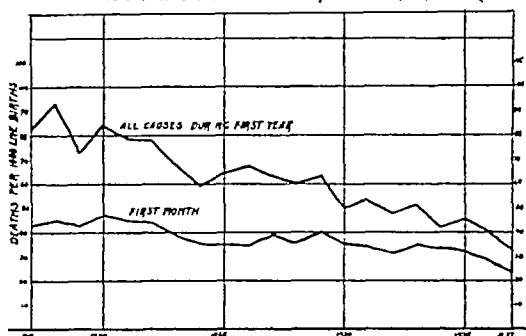
Chart 4 shows the reduction in infant and neonatal mortality rates in Rochester from 1917 to 1937. The 1937 infant mortality rate was 32, considerably lower than the United States and New York State rates, and represents a drop of 62 per cent. The 1936 neonatal mortality rate was also lower than average, being 23.9—a 33 per cent reduction in twenty-one years.

The drawing together of the two curves shows the still greater reduction in the death rate in the age period between 1 and 12 months

Chart 5 demonstrates more strikingly the reduction in these three rates during the last twenty years in Rochester, and

CHART 4

## INFANT AND NEONATAL MORTALITY ROCHESTER



indicates that for every 100 children dying in Rochester in 1917 in each of the three groups of causes, 45 are now saved in the stillbirth group, 43 in the neonatal group, and 62 in the group under 1 year—an achievement of real progress

Table 1 summarizes and compares the reduction in stillbirth, neonatal, and infant mortality rates in the United States, New York State, and Rochester. It emphasizes the marked reduction in neonatal mortality rate, the relatively slight reduction in the stillbirth rate, and Rochester's slightly better showing in the neonatal and infant mortality rates and superior showing in the stillbirth rate.

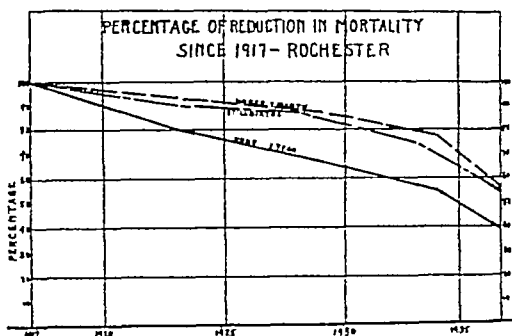
It is difficult to compare the United States neonatal mortality and stillbirth figures with those of other countries because of differences of definition and availability of figures, but I believe that the United States neonatal rates are higher than those of Australia and New Zealand (rates, 23), Netherlands (rate, 22), and Norway (rate, 24).

Table 2, based on New York State figures, shows the deaths of infants under 1 month per 1,000 live births from 1915 to 1936 (under 1 day, 1 to 6 days, and 7 to 29 days) and shows the very great importance of the first day of life, which has increased relatively. Only slight reduction of mortality has taken place here (14 per cent compared with the 69 per cent reduction in the period of 7 to 29 days).

We turn now to the Rochester 1936 cases and attempt to learn the principal causes of death and to classify them in

order to learn the important factors needing particular attention. That year Rochester had a population of 336,527. There were 4,918 births—birth rate 14.61. Deaths of infants under 1 year numbered 199, stillbirths 135, and neonatal deaths 145.

CHART 5



The records of all of the 1936 stillbirths available (120—90 per cent of the total) and of all the neonatal deaths (133—92 per cent of the total) are studied, and the principal causes of death are determined as accurately as possible and arranged in a series of tables.

For the sake of convenience, the stillbirths are classified separately from the neonatal deaths, but logically they should be considered together, as many of the same factors are operating in both groups.

The causes of death in the stillbirths are classified according to the suggestions of the Federal Children's Bureau and are divided into two groups, those operating primarily in the baby and those in the mother. This arrangement is valuable in arriving at the true cause of death, since a possible important maternal factor is not overlooked.

The stillbirth data on causes of death are analyzed in three tables, which are self-explanatory (Tables 3, 4, and 5).

TABLE 2—NEW YORK STATE DEATHS OF INFANTS UNDER 1 MONTH PER 1,000 LIVE BIRTHS 1915 TO 1936

Year	Under One Day	One to Six Days	Seven to Twenty nine Days
1915	20.5	15.1	13.6
1920	18.7	14.2	12.6
1925	18	13.3	8.2
1930	18.6	11.8	6.9
1935	16.4	9.4	4.9
1936	17.6	9.6	4.4
Percentage reduction	14	36	69

TABLE 1—A COMPARISON OF THE REDUCTION IN STILLBIRTH, NEONATAL, AND INFANT MORTALITY RATES IN THE UNITED STATES, NEW YORK STATE AND ROCHESTER, NEW YORK

	Infant Mortality Rate	Stillbirth Rate	Neonatal Mortality Rate	Total Stillbirth and Neonatal Rates
United States				
1915	100			
1921	75	39 (1922)	40	79
1935	56	36	32	68
Percentage reduction	30 ('21-'35)	8	20	14
48 (15-'35)				
New York State				
1915	99	39.1	41.3	80.4
1936	47.1	38.9	29.6	68.6
Percentage reduction	53	0.5	28	15
Rochester				
1917	83	40	42.4	82.4
1936	40	26.7	28.4	55.1
1937	32	22	33.9	45.9
Percentage reduction '36	51	37	33	33.1
Percentage reduction '37	62	45	43	44

TABLE 3—STILLBIRTHS: PRINCIPAL CAUSES OF DEATH—1936

		1936	Full Term	Premature	Autopsies*
A. Fetal cause					
Asphyxia		47	27	20	9
Placenta premature separation	8				
Placenta praevia	2				
Cord abnormal	28				
Aspiration	9				
Congenital malformations				4	4
Head	5				
Spina bifida	1				
Heart	0				
Other	1				
Birth injury		13	12	1	1
Other causes		2	0	2	2
Unknown		51	19	32	3
Totals		120	61	59	
B. Maternal cause					
Infections		5	2	3	1
Syphilis	3				
Other	2				
Eclampsia		17	5	12	5
Other toxemia		1	0	1	0
Other accidents (dystocia, cesarians)		13	12	1	2
External causes		8	0	5	0
Hemorrhage		10	2	0	0
Disease		0	0	0	0
Unknown		59	40	29	2
Totals		120	61	59	29

\* Autopsy cases in contrast to the others in this table appear only once in either the fetal or maternal group

TABLE 4.—STILLBIRTHS: CAUSES OF DEATH AND MONTHS OF GESTATION REACHED

	Month (Lunar)	5	6	7	8	9	10	10+	Totals
Asphyxia.									
Placenta premature separation			1		2	3	2		8
Placenta praevia				1	1				2
Cord abnormality		1		2	1	4	18	2	28
Aspiration		1		1		2	5		9
Birth injury						1	10	2	13
Congenital malformations				2	1	1	2	1	7
Other causes					1	1			2
Infections									
Syphilis							2		5
Other		2				1			
Eclampsia			2	2	4	4	4	1	17
External causes		1	2	2					5
Case unknown		2	2	5		2	12		23
Totals		7	7	15	10	19	55	6	119

Table 3 shows the principal causes, fetal and maternal, in (1) all the cases—120, (2) the full term group—61 cases, (3) the prematures—20, and (4) the autopsied cases—29

Table 4 arranges all the stillbirths according to the lunar month of gestation

reached and the cause of death. There were only 14, or 12 per cent, in the pre-viable age.

On account of the rather small number of our cases and the low autopsy rate of 25 per cent, we compared our figures for percentages of causes of stillbirth deaths



TABLE 5—STILLBIRTHS, PRINCIPAL CAUSES, ROCHESTER 1936-1937, AND OTHER STUDIES

Name of Series	Percentage			Health Bur Rochester 1937	Child Bureau 2 000	Dr Adair 243	Dr Gillespie 338	Rush Med School 226
	Rochester, 1936							
Number of cases	All 120	Prem. 59	Term 61	116				
A. Fetal cause								
Asphyxia	39	34	44	41 4	33	38	10	33
Congenital malformations	6	6 8	5	10 3	7	10	11	5
Birth injury	12	1 7	20	13 0	5	15	30	0 4
Infections	2	3 4		2 0	4			
Unknown	42	54 4	31	32 0	51	15	4	
Prematurity							16	14 5
Macerated						22	16	44 2
B. Maternal cause								
Hemorrhage	8 3	13 6	3 3	13 0	18		8	
Toxemia	15 2	22 1	8 2	14 7	10		4	
Accidents of childbirth	15 2	8 5	20 2	11 2	10		30	
Other diseases	4 3	5 1	3 3	2 0	15			
Unknown	57 5	52 0	65 0	59 5	27			
Other puerperal conditions					7			

in 1936 with the Rochester Health Bureau statistics for 1937, the 2,000 cases from the Children's Bureau Study,<sup>3</sup> Dr Adair's figures,<sup>4</sup> Dr Gillespie's,<sup>5</sup> and those of the Rush Medical School<sup>6</sup> in Table 5

This method of classification rather underemphasizes the importance of prematurity, which is classified under the fetal cause "unknown" when immaturity is the only finding. Fifty-nine of the 1936 Rochester stillbirths were premature and 32 of them are in this last group.

Further analysis of the stillbirth material showed

Sex: males 53 per cent, females 45 per cent, unknown 2 per cent.

Multiple births: 3 sets of twins. (Among live births, slightly less than 1 per cent are the result of multiple pregnancy.)

On the basis of their weights, 50 per cent were premature, weighing less than 2,500 Gm. The smallest baby weighed 10 oz., and the largest baby weighed 12 lbs.

Race: only 1 colored baby (only 47 born in 1936).

The time of death with respect to labor was not available from the records in most cases. It would have been very helpful in interpreting the true significance, for instance, of an operative delivery. Twenty-six fetuses were macerated.

Number of pregnancies: 40 per cent of mothers were primiparas, 60 per cent multiparas.

Age of mothers		
15 to 20 years	9	9
20 to 25 years	19	53
25 to 30 years	34	
30 to 35 years	31	47
35 to 40 years	16	
40 to 45 years	4	4

In the state the age group 20 to 30 for mothers of live babies has two times the number in 30 to 40—hence my figures indicate the greater likelihood of having a stillbirth when in the age group 30 to 40 years.

The method of delivery is thought of as a frequent cause of death. Forty-one, or 33 per cent, of the cases were operative. There were 21 forceps cases (all low, except 6 divided, 3 high, and 3 mid forceps).

There were 6 breech presentations with extraction, 2 cesarian sections, and 12 version and extractions.

Types of presentation: records were incomplete, but there were at least 20 per cent pathologic: 19 breech, 5 occipital posterior, and 1 transverse.

Duration of labor was not noted in all cases, 4 cases were prolonged over 18 hours.

Classified according to private and ward cases: private 77, ward 43.

Wassermann blood tests were recorded on one third of the private cases. Results were negative. On three fourths of the ward patients, 1 result was positive.

Autopsies were done on 25 per cent of cases. One hospital had 86 per cent of all cases autopsied, while two hospitals had no autopsies.

Type of prenatal care: records were very incomplete but suggested good or fair care in two thirds of the cases.

Anesthetics used: ether alone, 43 cases, gas and oxygen alone, 16 cases, combined ether, gas-oxygen, 5 cases, cyclopropane, 1 case, none, 10, none mentioned in one third of the cases. Analgesic drug was mentioned in only 36 cases. Barbitol derivatives alone or in combination were used in two thirds of the cases, and morphine alone in one-fourth. Sodium amytal was the most frequently used barbiturate.

It was not possible to judge the part

TABLE 6.—NEONATAL DEATHS 1936 PRINCIPAL CAUSE AND DAY OF DEATH

	All	1st		2nd		3-6		7-13		14-21		21-28		1-3 Mos.	
		P	F	P	F	P	F	P	F	P	F	P	F	P	F
Cerebral hemorrhage	14	2	4	2	2		3		1						
Congenital malformations	27	4	8			1	1		4	2				2	3
Pneumonia	13	1	1	1	2			1	2						3
Asphyxia	13	0	6				1	1							
Pulmonary hemorrhage	3	2	1												
Edema of brain	3	1	1		1										
Blood disease	4	2	1												
No demonstrable disease															
(a) Viable—marked atel ectasis	1		1												
(b) Marked immaturity or mother path or both	49	40		2		1									
(c) Full term—no atel mother all right	1		1												
Miscellaneous	5	1	2			1				1					
Totals	133	65	25	5	9	3	5	2	7	0	3	0	0	2	6

TABLE 7.—PRINCIPAL CAUSES OF NEONATAL DEATHS ROCHESTER SERIES COMPARED WITH OTHERS

Name	Rochester Series 1936					Percentages					Roch.	
	133	75	Aut	77	Pre	56	F	T	398	243	198	11 B '37
No cases	10	5	8	0	5	4	17	9	25	0	15	0
Birth injury	20	3	25	3	6	7	30	4	15	8	12	0
Congenital malformations	9	8	9	3	0	7	14	3	9	5	0	0
Pneumonia, etc.	9	8	13	3	9	4	10	7	3	3	4	0
Asphyxia	2	2	0	0	2	7	1	8	2	0		
Pulmonary hemorrhage	2	2	2	0	1	3	3	6	1	8		
Edema of brain	3	0	5	3	2	7	3	6	1	5		
Erythroblastosis	37	9	29	2	65	7	3	6	30	9	15	0
No demonstrable disease	(0	3	1	3	0	0	1	8	9	3	10	0
(a) Viable with marked atel ectasis	(36	8	25	3	65	7	0	0	20	8	32	0
(b) Marked immaturity or pa thology in mother or both	(0	8	2	6	0	0	1	8	0	5		
(c) Full term—no atelctasis—no pathology in mother	8	7	2	0	2	7	5	4	0	0		
Miscellaneous												13

that anesthetics and analgesics played in these deaths, but the author could not escape the conviction that where there was prematurity pathologic presentations, or difficult delivery the added depression of the narcosis may have been a real cause of death in some cases, especially when large doses were used.

The analysis of the 1936 neonatal death group is above (Table 6), and covers 133 of the 145 cases dying during the first month. Autopsies were done on 56 per cent of the cases.

The causes of death are classified according to Dr Bundesen's arrangement, which lists marked atelectasis, marked immaturity, or mother pathologic under the heading 'no demonstrable disease'. This classification, like that of the still birth, lowers the usual emphasis placed on prematurity as a cause of neonatal death but its significance cannot be overlooked, for, if not a primary factor causing death, it may be a secondary one.

Seventy seven, or 57 per cent, of the babies were premature. In only 49 of these is prematurity the only finding.

The principal causes of death and the day of death are indicated for the entire, full term, and the premature groups.

This table among other things indicates that three fourths of the babies dying under 1 month died on the first day, and four fifths by the end of the second day. All 67 of the 77 prematures died in the first two days. Sixty five died on the first day.

The percentages of the principal causes of neonatal deaths in the 1936 Rochester figures are compared with the larger more satisfactory autopsied groups of Dr Bundesen<sup>2</sup> and Adair<sup>4</sup> (198 cases) and the Rochester Health Bureau 1937 figures (398 cases) in Table 7.

Table 8, based on New York State statistics of deaths of infants from natal and neonatal causes, is of considerable interest, showing the classification of

deaths by the International List and the little reduction in these rates during ten years

TABLE 8—NEW YORK STATE DEATHS OF INFANTS FROM NEONATAL AND NATAL CAUSES IN 1927 AND 1930

	1927	1930
Congenital malformations 157	5 4	5 8
Congenital debility, etc., 158, 161bc	3 1	1 0
Prematurity, 159	16 0	14 0
Birth injury, 160	5 6	5 8
Other causes of early infancy 161ade	3 0	2 2

Further analysis of the Rochester neonatal material showed

Sex males 55 per cent, females 45 per cent

Race 2 Negro

Multiple births 5 sets of twins

The data on the 77 premature babies were analyzed as to the estimated month of maturity reached when born, as follows

Under 20 weeks	1
20 to 24 weeks	14
24 to 28 weeks	22
28 to 32 weeks	19
32 to 36 weeks	15
36 to 40 weeks	6

Thirty-seven, or approximately one-half of the prematures, were under 28 weeks of age and so were too immature to survive

The premature group was analyzed according to weight, 65 weighing under 2,500 Gm. In the entire group the largest baby weighed 10½ lbs and the smallest 10 oz

Number of pregnancies of the mother primipara 40 per cent, multipara 70 per cent

Private and ward cases were about equal in number

Estimate of maternal care in about 60 per cent classified as good or fair

Wassermann blood tests were done on less than one-half of the cases, two times as often on ward cases. There were only 3 positive reactions

An analysis of the mothers' ages showed the following

16 to 20 years	7	
20 to 25 years	21	49
25 to 30 years	28	
30 to 35 years	31	
35 to 40 years	12	43
40 to 45 years	8	

Type of delivery operative in 40 cases (43 per cent) 20 forceps (1 high, 0 mid), 12 version and extraction, 4 breech extraction, and 4 cesarian section

Type of presentation pathologic in 30 cases as follows 18 breech, 7 occipital posterior, 4 transverse, and 1 mental

The following maternal factors are important 4 cases of toxemia, 5 placenta praevia, 9 accidents and injuries, 1 abruptio placenta, and 2 (?) syphilis

Duration of labor 9 prolonged, 7 precipitate.

Anesthesia ether alone, 38 cases, gas and oxygen alone, 17 cases, combined gas and oxygen, 6, chloroform, 2, cyclopropane and gas and oxygen, 1. None used or recorded in 72, or 54 per cent

Analgesia data recorded in only 40 cases. Barbitol derivatives used in 75 per cent, sodium amytal most frequently, and morphine alone or in combination was used in 12 cases

To summarize, the data on the causes of death in stillbirths show

- 1 The chief fetal causes were asphyxia (39 per cent), birth injury (12 per cent), and congenital malformations (6 per cent)
- 2 The chief maternal causes were toxemia (15 per cent), accidents of childbirth (15 per cent), and hemorrhage (8 per cent)
- 3 Practically 50 per cent of these babies were premature, but only 10 per cent previable.

The principal causes of death in the neonatal group of Rochester cases were congenital malformations (20 per cent), birth injury (10.5 per cent), pneumonia and asphyxia each (9 per cent), and no demonstrable disease, which included cases showing immaturity alone (38 per cent)

Time does not permit us to discuss the reduction of these factors in any detail

The congenital malformation group seems the most hopeless of all. Studies by Streeter<sup>7</sup> and by Murphy<sup>8</sup> suggest the primary part played by hereditary factors in their causation, and we must be alert to the possibilities of defective recessive genes in both families. Certain defects are definitely inheritable, such as cleft palate, clubfoot, deaf-mutism, hemophilia, spina bifida, and epilepsy. Some lethal factors may be responsible for monstrosities

Prematurity will be prevented in some cases by early and adequate prenatal care and early treatment of toxemias in the mother, by regimes adequate in rest

and free from strain, maternal diets adequate in vitamins—perhaps especially rich in vitamin E<sup>13</sup>, and hormone therapy including in some cases, where indicated, thyroid gland, pregnancy urine extract,<sup>14</sup> and perhaps progesterone.<sup>15</sup> Syphilis as a cause of prematurity should be eliminated in New York State as a result of our two new laws.

The care of the premature baby is a hospital problem requiring, usually, expert medical advice, special warm beds, correct diet, often breast milk, and freedom from exposure. Much can be done to save these babies, as outlined by Dr Hess<sup>6</sup> in particular.

Birth injury, i.e., intracranial hemorrhage, must not be considered as always due to the fault of the doctor, as it may occur when he has not interfered in any way. Problems of malpresentation, disproportion, deliveries that are too precipitate and forceful, prolonged excessive pressure, breech deliveries, version and extraction, and especially forceps deliveries result in intracranial hemorrhage in from 10 to 50 per cent. The obstetrician must understand the stresses on the infant's head and its liability to injury.

Dr Eardley Holland,<sup>10</sup> of England, has done a classic piece of work in analyzing the forces acting on the baby in labor. To reduce intracranial hemorrhage, an improvement of obstetric technic and judgment is needed and definite indications for interference recognized. All intracranial hemorrhage cannot be prevented, but it can be reduced in amount.<sup>16</sup>

The correct treatment of a baby with intracranial hemorrhage should be familiar to the obstetrician—warmth, gentleness in handling, maintaining fluids, possibly repeated lumbar punctures to reduce pressure, oxygen for cyanotic attacks, and whole blood.

The prevention and treatment of asphyxia neonatorum might concern this group for many hours. The placental and cord difficulties cannot be helped much except as they are recognized early intra utero when operative interference may be in time. A pediatrician with a

purely theoretic familiarity with the problems of obstetric anesthesia finds much in the literature<sup>17</sup> to make him feel that barbiturate analgesia should be employed only by experts working in hospitals with especially trained personnel and then not in prematures or where birth trauma is likely. That small doses of morphine early in the first stage and ether alone or mixed with  $\frac{1}{4}$  vinyl ether for the pains of the second stage are the safest to use in the average delivery, that chloroform should not be used at all, that nitrous oxide and oxygen are useful in the second stage but safe only in proportion of 85 parts nitrous oxide to 15 of oxygen, that cyclopropane in the hands of an expert is very useful.

The problem of resuscitation of the newborn is controversial in some points, but all authorities agree that gentle suction should be applied to the pharynx of all newborn babies to clean out the mucus, blood, and amniotic fluid.<sup>18</sup> If breathing is delayed, then oxygen (85 to 90 per cent) and carbon dioxide (10 per cent) or perhaps pure oxygen is indicated. All violent methods of resuscitation should be avoided. Alpha lobelin ( $\frac{1}{m}$  gr) as advocated by Wilson<sup>11</sup> injected into the umbilical vein may be of great value in initiating the first respiration. According to Dr Y. Henderson,<sup>12</sup> in resuscitating a baby no mechanical device for artificial respiration should be used that sucks air out of the lung, such as a pulmotor or the E & J Respirator as they are likely to cut off inspiration prematurely.

### Conclusion

Stillbirth and neonatal death rates have declined considerably in Rochester and elsewhere, and there is no reason to believe that they cannot be reduced more.

The most important factor in accomplishing this is the physician well trained in obstetrics and pediatrics.

Perhaps general practitioners should be better trained in the early diagnosis of obstetric complications so that they will seek expert help earlier. There is need for increased knowledge of the basic

anatomy and physiology of this period<sup>19</sup> Women should be educated to come earlier for prenatal care and they should know that complete obstetric amnesia may not always be safe for the baby

Hospitals should provide adequate facilities for the care of prematures

Finally, I should like to suggest that in each community a group of men interested in the problems of stillbirth and neonatal death, including, if possible, obstetricians, pediatricians, pathologists, anesthetists, and a health officer, should meet once or twice a year and discuss the progress of their community and their individual hospitals in reducing these death rates

They might plan a standard obstetric record for all hospitals, plan and execute studies, define standards of procedure, suggest hospital rules for consultation on all prolonged or complicated labor, review all stillbirths and neonatal deaths of the past year, and discuss controversial subjects, such as obstetric analgesia, intracranial injury, and intrauterine asphyxia

. . .

I wish to express my appreciation of the great help given me in the preparation of this paper by Dr A. D. Kaiser, Mr Henry Lieberwurst, of the Health Bureau, and the record librarians of the hospitals

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## Discussion

Dr Carl H. Laws, Brooklyn, New York—In order to stress the importance of Dr Soule's excellent paper, I want to quote a few sentences from the introduction in a Children's Bureau publication on the "Appraisal of the Newborn Infant" by Dr Ethel C. Dunham

"The neonatal period is one of great danger to the infant as well as one about which too little is known. That more attention should be given to the appraisal of the newborn infant and to his care is indicated by the high mortality rate among infants in the first month of life." Further on in her introduction Dr Dunham states "The appraisal of the newborn infant will, of course, be made more exact by improvement in clinical methods of examination, by establishment of certain standards of growth and development, and by more intensive study of causes of neonatal deaths, supplemented by postmortem and other laboratory examinations"

Dr Soule in his paper stated that "a considerable number of the records were incomplete, especially in respect to the prenatal care of the mother and a description of the baby and his subsequent course. In some cases, only the nurse's notes revealed that a baby had died.

"Autopsies were secured in 43 per cent of the cases and frequently, although well done, they

were still unsatisfactory in that they lacked careful examinations of the head for intracranial injury and in that there were too few microscopic examinations of the lungs.

Quoting from Dr Herman N Bundesen's report "To be considered satisfactory, a necropsy (1) must have been done by a competent pathologist, familiar with fetal and infant pathology (2) must have included an examination of the brain and cranial cavity (3) must have included a microscopic examination of the tissues and (4) must have included a complete, written report of the results." His investigation revealed that many of the necropsies done on infants during the neonatal period were unsatisfactory because they had been delegated to untrained men to teach them necropsy technique. In other instances, necropsies were indifferently performed by well-trained men who had little interest in making any real effort to determine the correct cause of death.

After hearing Dr Soule's paper we should all be stimulated to try to have (1) a competent pathologist familiar with fetal and infant pathology in every hospital so that accurate and complete records are kept of every necropsy (2) a complete prenatal, natal and postnatal history (3) a careful appraisal of the newborn infant, (4) adequate facilities for the care of pre-matures.

Would it be possible to supply every newly married couple with a pamphlet published by the New York State Medical Society on prenatal care, thus stimulating a desire in them to seek the proper care early in their pregnancy?

I wonder if Dr Soule would tell us what plan they followed in Rochester to accomplish their excellent reduction in the stillbirth rate?

Dr Charles F Bolduan, *New York City*—I have been greatly interested in Dr Soule's careful analysis of the factors responsible for antenatal and neonatal deaths in infants in Rochester. The more so because I too have been emphasizing the main conclusions which he draws from his study.

Rochester's statistics on this subject are very similar to those of New York City—we also have had a much larger reduction of infant mortality as a whole than of neonatal mortality, i.e. death rate during the first month of life. Our stillbirth rates are not comparable, for in New York City we have for many years recorded

as stillbirths all products of gestation, including what are generally termed early abortions or miscarriage. Our rate for stillbirths thus defined has declined from 89 to 44.3, i.e. by about 50 per cent.

Dr Soule has well pointed out that the available mortality statistics, tabulated as they are according to the International Classification, give us very little information when we seek to determine the causative factors in antenatal and neonatal deaths.

I believe that we in New York were the first to secure more detailed information which might help in the situation.

In 1933 we added another line to our birth certificates asking information regarding the mode of delivery. That was done because injury at birth loomed so large as a cause of death. This method of obtaining additional information was so successful that we have now extended it by introducing an entirely new form of birth certificate. The face of the certificate is unchanged. Any photostatic transcripts which may be issued will therefore be the same as they have always been.

On the reverse side, however, we are asking for a confidential report giving many important details. Among the questions asked are the period of gestation, the length and weight of the infant at birth, whether the pregnancy was normal and if not, in what particular it was abnormal, whether a serologic test for syphilis was made during pregnancy and if so when and its result. The duration of labor is asked, also whether it was induced and if so the method of induction. If the delivery was operative, the indication for the operation and the operative procedure are to be stated.

I might add that the stillbirth certificate has also been revised providing on the reverse side for very similar confidential information.

These new certificates have had the endorsement of the organized medical profession and we are already receiving detailed information on births and stillbirths now reported in New York City. I am confident that this will enable us to determine how we can best attack the problem so ably brought out by Dr Soule.

I want to thank Dr Soule for this opportunity to participate in the discussion. He has made out an excellent case for the need of much more intensive work for the reduction of antenatal and neonatal mortality.

A medical journal in the Middle West knows a good thing when it sees it, and prints a piece from one of its own previous articles in its department of quotations:

Farmers tell us there are 8,000 kinds of apples. And still doctors survive.—*Health Digest*  
Maybe that's because it's applesauce—  
*Rocky Mountain Medical Journal*

# CLINICAL EXPERIENCE WITH SULFAPYRIDINE IN THE TREATMENT OF LOBAR PNEUMONIA

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**T**HE advent of serum therapy in the treatment of lobar pneumonia has been instrumental in greatly reducing the mortality rate of this disease. The morbidity of the disease, however, varies considerably, since during some years we encounter only predominant types. Likewise, the virulence of each particular type itself is not constant and the resultant mortality rate in one type may be much lower than that in another even under similar conditions. Chemotherapy has thus far played an unimportant part as a specific agent in this disease and has been used primarily as a symptomatic form of therapy. The introduction of sulfapyridine has opened a new avenue in the management of pneumonia, and promises to be an efficient as well as economical form of therapy. At the Edward J Meyer Memorial Hospital (Buffalo City Hospital) we have used sulfapyridine in a group of 100 cases to date.

## Selection of Cases

In this clinical study only those patients who were definitely diagnosed as lobar pneumonia were used. Each case was taken routinely as admitted but the drug was prescribed only where a clinical and a roentgenographic diagnosis of lobar pneumonia was made. The duration of illness prior to admission was not considered as a factor in prohibiting the use of the drug, nor did the age, the seriousness of the illness, or complications deter our prescribing it. Routine studies were made on the sputum type, blood picture, blood culture, and blood concentration of the drug in each case. We have also included in our group 6 postoperative pneumonias, 1 during pregnancy at six months and 1 at the time of delivery.

## Method of Administration

After the diagnosis of lobar pneumonia had been made, each patient was placed on a liquid diet, which consisted of at least 3 liters per day and was made up primarily of fruit juices and milk. If oral fluids were not taken in sufficient quantities we resorted to parenteral administration. The only other routine therapeutic agent we used was an opiate to relieve pain and dyspnea. In the majority of our cases oxygen was administered for cyanosis, this by means of nasal catheter. Sulfapyridine was administered orally in a 2 Gm dose upon admission and followed by 1 Gm every four hours for the first twenty-four, at which time the interval between 1 Gm doses was raised to every six hours. In no case did we exceed a total of 37 Gm of the drug, while in the majority of cases much less was required. Our criterion for cessation of the drug was usually two days after the temperature had returned to normal and had shown no secondary rise. In a few instances emesis became severe and we were obliged to administer the drug subcutaneously.

The parenteral preparation was approximately a 0.1 per cent solution of the drug in normal saline. It was prepared by dissolving 0.5 Gm of the drug in saline and filtering out the undissolved portion.

The method used for the determination of sulfapyridine (2 [para aminobenzene sulfamide] pyridine) in the blood was that described by Marshall for the determination of sulfanilamide. A standard made with chemically pure sulfapyridine was substituted for one made with sulfanilamide. A variability in the blood concentration of sulfapyridine among individuals receiving the same dose schedule

has been observed by others<sup>1</sup> It has been suggested that this may be due to irregular absorption of the drug or to differences in its conjugation

Since nausea and emesis were observed in many of our cases when the drug was given in its tablet form, and because it is so poorly soluble in water (1:1000), we have found it best tolerated when suspended in milk, and for this reason have routinely given it in this manner orally which obviated this complication in most instances

### Clinical Analysis of Data

We have studied 100 cases, and in this number found 20 colored, 4 Indian, and the remainder white. Males predominated, as shown in the table below

SEX &amp; COLOR

	Number of Cases
White male	49
White female	27
Colored male	9
Colored female	11
Indian male	1
Indian female	3

One woman of this group was six months pregnant and she fully recovered with no ill effect on the pregnancy. Another was almost at term, delivered, recovered from her pneumonia, developed a serofibrinous pleurisy, and improved. Both of these were of the streptococcus anhemolyticus type.

The ages varied considerably, as the following table illustrates with the youngest 6 months and the oldest 76 years old

AGES

Age	Number of Cases
0-1	3
1-5	9
5-10	9
10-20	13
20-30	12
30-40	10
40-50	17
50-60	12
60-70	7
70-80	3

In patients under 15 years of age, the drug was administered in 0.5 Gm. doses dissolved in milk but given in the same intervals as adults. Complications in

children were less frequent and, if present at all, were of milder type. Recovery in all the children was by lysis.

Sputum typings were done on all cases and revealed that 25 cases were Type I, 14, Type II, 6, Type III, 3, Type IV, 3, Type V, 1, Type VI, 7, Type VII, 1, Type XIV. Of the remainder, 24 cases were negative for typing and culture. Thirteen gave a culture of streptococcus anhemolyticus and staphylococcus albus, whereas 3 cases revealed gram positive cocci ox bile soluble.

SPUTUM TYPING

Type	Number of Cases	Percentage	Mortality Percentage
I	25	25	8
II	14	14	0
III	6	6	16.6
IV	3	3	0
V	3	3	0
VI	1	1	0
VII	7	7	0
XIV	1	1	0

Blood cultures were taken on all cases and in 4 instances were positive. One of these was for a Type II, 1 Type VI, 1 Type XIV, and 1 for streptococcus hemolyticus, all of whom recovered. In all cases complete blood picture studies were made prior to the start of sulfapyridine therapy, every two days during the course of treatment, and following the crisis or lysis in each case. In no case did we administer the drug where the red blood cells fell below 2,500,000 or where the hemoglobin was below 50 per cent by Sahli. The following table will show the reduction in white cells and polymorphonuclear cells following the use of sulfapyridine.

BLOOD COUNTS BEFORE AND AFTER TREATMENT

WBC Before	Number of Cases	WBC Following	Number of Cases
0-5,000	0	0-5,000	1
5-10,000	25	5-10,000	71
10-20,000	48	10-20,000	21
20-30,000	19	20-30,000	5
30-40,000	5	30-40,000	2

Polymorphonuclears Before	Polymorphonuclears After
60-70	10
70-80	37
80-90	44

Polymorphonuclears Before	Polymorphonuclears After
60-70	30
70-80	61
80-90	9

The majority of our cases showed a considerable leukocytosis at the begin



TABLE 1.—ANALYSIS OF BLOOD CONCENTRATION LEVELS AND REACTIONS—IN SOME OF THE CASES

Initial	Blood Culture	Date Drug Started	Date Drug Stopped	Total Amount of Drug Used	Complications	Blood Concentration Sulfapyridine	Reactions
O N	Neg	1/31	2/4	26	None	2/2 9 mg 2/4 10 mg 2/6 Neg	Cyanosis
F R	Neg	2/13	2/15	13	None	2/15 13 0 mg	None
J G	Neg	2/17	2/20	8	None	2/20 10 8 mg	Nausea
W S	Positive Streptococcus	2/22	2/27	33	Thick Pleura	2/20 12 3 mg 2/22 5 mg 2/23 4 mg 2/25 1 mg 2/27 Less 1 mg	Cyanosis
F G	Neg	2/20	2/22	9 2	None	2/22 5 mg	Emesis
J G	Neg	2/22	2/26	18	None	2/23 5 9 mg 2/24 3 mg 2/25 Less 1 mg	Cyanosis
J D	Neg	2/22	2/24	9	None	2/23 Less 1 mg 2/24 8 mg	None
S G	Neg	2/22	2/27	18	None	2/23 5 8 mg 2/25 10 mg 2/27 6 9 mg 3/1 2 mg	None
A D	Neg	2/23	2/26	15	Pregnancy	2/24 Neg 2/25 7 7 mg 2/27 2 mg 2/28 Neg	Toxic psychosis
W B	Neg	2/26	3/1	12	None	2/27 4 6 mg 3/1 5 0 mg	Cyanosis
J G	Neg	2/24	3/2	23	None	2/25 Less 1 mg 2/27 Less 1 mg 3/1 Neg	Cyanosis
B M	Neg	3/3	3/6	17	Pregnancy	3/6 4 mg	Nausea
S K.	Neg	3/5	3/7	6	None	3/6 6 5 mg	None
L K.	Neg	2/28	3/6	21	Cerebral hemorrhage	3/1 Less 1 mg 3/3 2 mg	Cyanosis
R. R.	Neg	3/10	3/13	7	None	3/13 Less 1 mg	None
A. M	Neg	3/12	3/14	7	None	3/13 2 mg 3/15 2 5 mg	None
J M	Neg	3/17	3/19	4 5	None	3/19 Neg	None
N D	Neg	3/21	3/24	11	None	3/22 0 6 mg	Nausea
R E	Neg	3/22	3/24	10	None	3/23 2 mg	None

ning of treatment of the disease and in the majority of them the white cell count remained high even after the patient had returned to normal temperature and the drug had been stopped

The anatomic involvement of the lobes is represented in the following table

LOBES INVOLVED	
Lobe	Cases
Right upper	12
Right middle	4
Right lower	37
Right upper and middle	1
Right middle and lower	4
Entire right lung	3
Left upper	6
Left lower	27
Both lowers	2
Left upper, left lower, and right middle	1
Central	1
Right upper and left lower	1

The duration of illness in our group varied from one day to more than two weeks, but in all instances the patients were acutely ill and showed the usual clinical signs of lobar pneumonia. Some in this group had "spill overs" to other lobes, which factor may account for the

long interval of illness prior to admission. The duration of illness following the administration of the drug was quite variable. In 12 cases the temperature dropped by crisis within twenty-four hours. In 19, it fell within forty-eight hours. Fifty-nine cases had a normal temperature at the end of seventy-two hours. Lysis occurred in the remaining cases. Three patients expired.

DURATION OF ILLNESS PRIOR TO ADMISSION	
Number of Days	Cases
0-2	52
3-5	27
6-9	12
10-14	6
Above two weeks	3

The amount of sulfapyridine required in our group of cases varied considerably with greatest number responding between 8 and 23 Gm. The smallest dosage was given to an infant of 6 months who showed definite clinical recovery after 3 Gm, while the largest amount was 33 Gm. The dosage table (page 1919) shows the amount of sulfapyridine given.

TABLE 2—ANALYSIS OF BLOOD CONCENTRATION LEVELS IN SPECIFIC TYPES

Initial	Blood Culture	Date Drug Started	Date Drug Stopped	TYPE I		Blood Concentration Sulfapyridine		Reactions
				Total Amount of Drug Used	Complications	3/3	4 7 mg	
A. F.	Neg.	3/2	3/6	21 Gm. and 300,000 units	Fluid			Nausea Cyanosis Delirium Cyanosis
R. M.	Neg.	3/7	3/13	24 Gm. and 250,000 units	Unresolved	3/8 2 mg. 3/10 1 mg. 3/11 Less 1 mg.		
O. W.	Neg.	3/8	3/13	23 Gm. and 50,000 units	None	3/10 9 mg. 3/13 9.5 mg.		Nausea
P. T.	Neg.	3/9	3/11	11 Gm. and 200,000 units	None	3/10 6.3 mg.		Emesis
M. S.	Neg.	3/10	3/17	8 Gm. and 250,000 units	None	3/18 3.7 mg. 3/17 2.5 mg.		Emesis
L. B.	Neg.	3/10	3/24	17 Gm.	None	3/20 7.7 mg. 3/22 10 mg.		Nausea Anemia
J. P.	Neg.	3/16	3/18	13 Gm.	Myocarditis	3/17 SL trace		Nausea
N. P.	Neg.	3/22	3/25	5 Gm.	None	3/24 2.3 mg.		None
TYPE II								
R. C.	Pos.	3/3	2/5	12 Gm.	Delirium tremens	3/4 7.5 mg. 3/5 Less 1 mg.		Delirium
L. B.	Neg.	2/17	2/20	18 Gm.	None	2/22 Neg.		Emesis
J. R.	Neg.	3/14	3/19	26 Gm.	None	3/18 6.5 mg.		None
J. J.	Neg.	3/20	3/24	21 Gm.	None	3/20 2 mg.		None
J. O.	Neg.	3/6	3/8	11 Gm.	None	3/7 4 mg. 3/8 1 mg.		Cyanosis
TYPE III								
A. T.	Neg.	2/17	2/20	13 Gm.	None	2/20 5.5 mg.		Nausea
J. F.	Neg.	2/17	2/21	16 Gm.	Ileus Singultus	2/20 10.5 mg.		Emesis
G. K.	Neg.	2/24	2/28	15 Gm.	None	2/25 5 mg. 2/27 4 mg.		Nausea
J. G.	Neg.	2/22	2/24	8 Gm.	None	2/23 Less 1 mg. 2/24 3 mg. 2/27 6 mg.		None
M. D.	Neg.	3/10	3/13	10 Gm.	None	3/13 2 mg.		Nausea
TYPE IV								
J. H.	Neg.	3/11	3/14	16 Gm.	None	3/18 5.5 mg. 3/15 Less 1 mg.		None
TYPE V								
E. G.	Neg.	3/20	3/24	12 Gm.	None	3/22 2 mg.		None
TYPE VI								
A. B.	Pos.	3/22	3/25	18 Gm.	Ileus	3/24 2.5 mg.		Cyanosis
TYPE VII								
J. M.	Neg.	2/27	3/6	28 Gm.	None	2/28 2 mg. 3/1 7.4 mg. 3/3 14 mg. 3/5 4.5 mg.		Cyanosis
H. S.	Neg.	3/6	3/13	24 Gm.	None	3/7 4.4 mg. 3/8 8 mg. 3/9 7.7 mg. 3/10 6.2 mg. 3/13 4.4 mg.		Delirium
TYPE XIV								
M. K.	Pos.	3/20	3/25	25 Gm.	Ileus Myocarditis	3/20 1 mg. 3/22 2.4 mg.		Cyanosis

## DOSAGE

Amt. Dose per Patient	Number of Cases
2.5-4 Gm.	4
4-6 Gm.	0
6-10 Gm.	20
10-14 Gm.	21
14-20 Gm.	22
20-24 Gm.	13
24-28 Gm.	7
28-33 Gm.	4

With the above dosage it was revealed that the blood concentration level varied considerably, irrespective of the amount of sulfapyridine used.

The figures on these pages tend to reveal that the reactions are apparently local manifestations and not dependent upon the amount of drug in the blood stream.

It is of interest to report that in the 2 cases showing delirium, the one was a colored male of twenty-eight years who also had delirium tremens and a positive blood culture, and after administration of 12 Gm of the drug showed marked physical and mental improvement. The other occurred in a male with Type VII pneumococcus and cleared up spontaneously two days after cessation of the drug.

In Type I pneumonia, of which we had 25 cases, serum was administered to 20 in conjunction with the drug, since in this type the efficiency of pneumococcus serum has been so well proved that we

hesitated to omit it. The serum was not given to 2 cases, however, until forty-eight hours after the sulfapyridine had been started and here, because of slow response to the drug, we did not feel justified in omitting the serum. Of Type III pneumococcus, we have had 6 cases treated with sulfapyridine and have found recovery occurring in 5, with the lowest amount of the drug needed being 6 Gm and the highest 26 Gm. Type II was present in 14 cases. The lowest amount of drug given was 12 Gm, the highest, 37 Gm. Type IV, observed only 3 times, required 15, 20, and 18 Gm, and Type V, a similar number of times, required 6, 18, and 18 Gm. Seven cases of Type VII required 5 to 27 Gm, whereas our 1 case of Type XIV required 25 Gm. The remaining streptococcus groups received the amounts as indicated in the table.

Reactions

No serious reactions to the drug have been experienced in any case, but we have observed milder toxic manifestations. The table below shows how many times we encountered these complications and also the highest and lowest level of the blood concentration at which these reactions were present.

BLOOD CONCENTRATION			
Reaction	Number of Cases	Highest	Lowest
Nausea	17	11 2	SI trace
Emesis	22	10 4	0
Cyanosis	18	14	0
Delirium	4	9 4	0
Total	61		

Comment

We have reviewed a series of 100 cases of lobar pneumonia in which sulfapyridine has been used. Three of this group expired. Our complications were minor in nature, 3 cases developed a serofibrinous pleurisy which ultimately subsided. Cyanosis was a rather common finding that did not embarrass the patient, nor did it respond to oxygen. It is interesting to note that in this series we had very few of the common complications of pneumonia, such as delirium, singultus, or ileus. The period of resolution and convalescence, however, was considerably prolonged. The morbidity of the lobar pneumonias this year seems to be of a milder nature than at other times. Because of this, the efficacy of the drug must stand the trial of a longer period of time to establish definitely its value.

333 Linwood Avenue

<sup>1</sup> Marshall, B. K., Emerson, Kendall and Cutting, W. C. J. A. M. A. 108 No. 12, 953 (March 20) 1937

METHUSELAH'S DIET

Methuselah ate what he found on his plate  
And never, as people do now,  
Did he note the amount of the caloric count  
He ate it because it was chow  
He wasn't disturbed, as at dinner he sat  
Destroying a roast or a pie,  
To think it was lacking in granular fat,  
Or a couple of vitamins shy  
He cheerfully chewed every species of food  
Untroubled by worries or fears  
Lest his health might be hurt by some fancy  
dessert—  
And he lived over nine hundred years  
—Anon, quoted in *Hospitals*, Chicago

"AH, THE THOUGHTS THAT ARISE IN ME"  
The judge directed a doctor to tell the jury in simple language why a man had died. The physician paused for a moment to choose words which would be comprehensible to even the most uneducated juror. Then he delivered his testimony.  
"This man died of a cerebral thrombosis, or possibly embolism, arising from an arteriosclerosis with which was associated a low-grade nephritis." He paused and Juror Number Seven exclaimed from his inmost feelings, "Well, I'll be d—"  
The judge turned on the culprit severely. "That remark deserves a fine of \$25.00 for contempt of court," he declared. "However, I won't assess it because I was thinking the same thing myself."—*Medical World*

# PHYSIOLOGIC OBSERVATIONS FOLLOWING INDUCED CONVULSIONS

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THE introduction of convulsant drugs into the treatment of mental disease<sup>1,2</sup> affords further opportunity for the study of physiologic changes associated with seizures. After Meduna introduced camphor and cardiazol as therapeutic agents in the treatment of schizophrenia, he described many clinical manifestations of the induced convulsion.<sup>3</sup> In his recent publication<sup>4</sup> he reports on some physiologic observations. The method of treatment and the clinical manifestations have been described by several authors.<sup>2,3,4,5,6</sup> The present report is limited to findings obtained with the aid of precision instruments and are therefore laboratory findings.

The observations include electrocardiographic, blood pressure, and spinal fluid studies. Fifteen patients treated with metrazol were the subjects but not all three procedures were carried out in each subject. E.K.G. tracings were made on all the patients. In all the patients the observations made before metrazol injections were found to be within the normal range.

## Method

A 3 lead E.K.G. was obtained on every patient before treatment was started. With contact plates of lead 2 securely in place, metrazol (pentamethylenetetrazol) was injected intravenously. When a seizure followed, the recording was begun immediately it was over and relaxation set in. Recording was continued until the patient began to show restlessness and was no longer perfectly quiet. If no seizure occurred, recording was started as soon as this was apparent. In some cases metrazol was injected less rapidly in

order to abort a convulsion. This was done to study the effect of the drug itself on the E.K.G. Several days to weeks after termination of treatment a 3 lead checkup E.K.G. was made.

Blood pressure readings were obtained for several minutes before and for many minutes (up to twenty five) after injection of the drug. No readings were attempted during the convulsive stage but were taken as early in the relaxation phase as was possible.

Spinal puncture was performed as soon after the seizure as was possible. The method employed is that used by Lennox and Merritt.<sup>19</sup>

## Findings

1 Metrazol administered intravenously in large doses causes an increase in cardiac rate but produces no other notable changes as seen in the E.K.G.

2 Following a metrazol convulsion the E.K.G. changes vary according to the severity of the convulsion.

A After a mild seizure there is a rapid rate, T wave elevation, depression of S-T segment, and arrhythmia.

B After a severe convulsion one finds, in addition, sinus arrest, shifting of the pacemaker, auricular and ventricular premature contractions, coupling of beats, nodal escapes, and rarely a marked bradycardia (forty six per minute in 1 case).

3 The blood pressure shows a rise in systolic and diastolic levels at time injection is begun. After a convulsion there may be a rise in both, but more frequently there is a marked fall in the diastolic while the systolic is moderately or notably elevated.

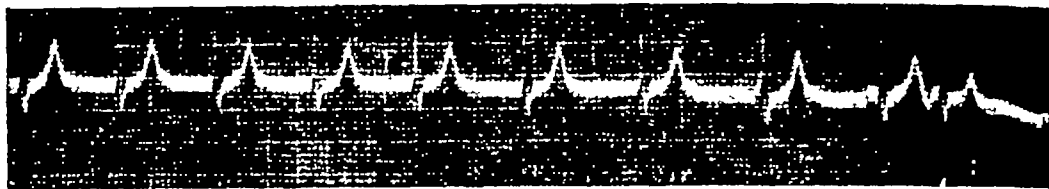


FIG 1(a) C B E.K.G shows run of nodal rhythm after metrazol convulsion

4 The cerebrospinal fluid after a metrazol convulsion shows a marked rise in pressure. The content of the fluid is found to be normal.

### Case Report

Findings in 1 case are cited. C B is a young male who had a severe seizure with marked cyanosis after rapid injection of 6 gr of metrazol intravenously. His relaxation phase was prolonged up to twenty-five minutes at least. The E.K.G tracing during this phase (Fig 1, March 8, 1938) showed variations in the P wave, auricular and ventricular premature contractions, coupling and variations in rate. These abnormalities began to disappear after several minutes. On March 31 his blood pressure was studied. His normal level before injection was 128/88. After the convulsion it was 130/40. The systolic then rose to 174, while the diastolic showed no notable changes in level. As he began to respond to stimuli (twenty minutes later) his blood pressure was 140/80.

The spinal fluid pressure after a convulsion (March 24) was 530, and in the course of a few minutes fell to 450. The same dose of metrazol given slowly provoked no convulsion and the E.K.G. and blood pressure findings after such injections were not remarkable.

### Discussion

In a recent report, Himwich, Bowman and their co-workers<sup>7</sup> described the findings in the blood of patients after metrazol convulsions. They found a marked diminution of oxygen in the arterial blood. Hemoglobin saturation after a convulsion may fall below 50 per cent. It appears that anoxemia so induced is responsible for many of the changes found after a convulsion.

Lennox and Cobb<sup>12</sup> found no notable E.K.G. changes during petit mal and myoclonic seizures. Experimental anoxemia in man produced changes in the E.K.G.<sup>13,14</sup> that resemble the findings

after a mild metrazol convulsion. The changes following the severe convulsion show many of the findings of Kountz and his co-workers,<sup>15,16</sup> who obtained E.K.G. tracings on experimental preparations through which blood of known low oxygen and increased CO<sub>2</sub> concentrations were perfused.

While studies on heart-lung preparations as made by Kountz help to evaluate the anoxic factor in E.K.G. changes, it is important to remember that changes in intracranial pressure found in the patient after a metrazol seizure no doubt exert effects on the cardiovascular systems. Abeles and Schneider<sup>11</sup> found marked changes in the E.K.G. during encephalography. Their findings, attributed by the authors to vagus effect, in many instances resemble the findings after a metrazol convulsion.

Coombs and Pike<sup>8</sup> studied the effects of convulsant drugs on the cardiovascular system and found a lowering of blood pressure after intravenous injection of camphor monobromide. Hofmann<sup>9</sup> reports a rise in blood pressure of the anesthetized rat after subcutaneous injection of cardiazol (metrazol). Sands and DeGraff<sup>10</sup> found that systolic blood pressure rises and the diastolic falls when anoxemia of marked degree is produced in the dog. Such changes result in an increased pulse pressure, which is an important factor in increasing the volume flow through the body. I believe that blood pressure changes after convulsions are due, in part, to anoxemia.

Notkin, Coombs, and Pike,<sup>11</sup> after a prolonged study of blood pressure changes in epileptics, found a rise and fall of levels in about the same number of cases. On examination of the 30 records these authors present, it is interesting and im-



FIG 1(b) E.K.G. of same patient after metrazol convulsion. His control E.K.G. was entirely normal.

portant to note that in all but 1 case was there a marked rise in the pulse pressure following a convulsion. It appears that this change is the most significant one and is a physiologic response to anoxemia.

Similar variations in blood pressure after convulsions in epilepsy have been noted by several authors and are cited by Lennox and Cobb.<sup>12</sup> These changes have not been previously attributed to be due in part to anoxemia.

Meduna<sup>3</sup> concludes from animal experimentation that the pressure of the cerebrospinal fluid must be elevated after a metrazol seizure, but he made no observations on his patients. Lennox and his co workers<sup>17,18,19</sup> found no notable changes in the content or pressure of spinal fluid in 80 per cent of epileptic patients studied. They and other workers found a marked rise in the pressure during the convulsion. The metrazol convulsion produces changes in the cerebrospinal fluid which do not differ from those found in the convulsions of non-specific causes.

### Summary

Fifteen schizophrenic patients treated with metrazol convulsions were observed for physiologic changes in the course of the induced convulsion.

The observations included E.K.G. tracings, blood pressure, and spinal fluid studies.

It was found that metrazol even in convulsive doses, given slowly so as to abort seizures, causes no notable changes.

The convulsion leads to varying degrees of anoxemia, which is the cause of temporary but marked changes in the heart and blood pressure. The so far

unexplained variations in blood pressure after a convulsion are due in part at least to anoxemia.

Spinal fluid studies reveal findings similar to those reported for convulsions in "essential" epilepsy.

The changes here reported seem to be temporary and of a totally reversible type.

I wish to express my appreciation to Doctors Karl M. Bowman and Paul Schilder for assistance given me in this work.

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# THE DIAGNOSIS AND TREATMENT OF DIABETES

## The Use of Protamine Zinc Insulin

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THE pity, horror, and despair felt by people who have seen their neighbors swept away and lost by floods have been vividly brought to the attention of the public through the newspaper and radio accounts of recent disasters. Something of the same feeling is experienced by physicians who see patients become the victims of preventable or controllable disease. This was brought home to me by a letter which I received not long ago: "Remember my telling you of my sister here in ——— who, we were sure, had diabetes but she wouldn't consult a doctor? On January 12 she died very suddenly over at the ——— hospital after Dr. ——— ordered her there, and I got her there at 7 P.M. on January 11. At 3:45 A.M. on January 12 she was gone, pneumonia and extremely serious diabetic condition were too much for her." The writer of this letter, although illiterate, was intelligent enough to know that she would not have been bereaved if treatment of diabetes had not been long neglected because of unreasonable obstinacy or fear. Undoubtedly many other such tragedies can be avoided if true information regarding the disease is disseminated and false notions regarding treatment eradicated.

Diabetes is high in the list of causes of death, and even when not fatal, it is responsible directly and indirectly for disability and distress in many cases. The mortality and suffering are to a large degree due to delayed and inadequate treatment. To get the sufferer from diabetes to the doctor for early diagnosis and treatment should be a major objective of public health activities. Education of the public is achieving this result to an increasing extent. It is also leading the public to expect a high standard in the

handling of diabetic patients by medical practitioners. If a patient who has been under medical care without having had a urinalysis later develops diabetes, the physician may be blamed for neglect. If a patient is assured by his physician that transitory glycosuria is due simply to overeating, and later becomes seriously ill with diabetes, the physician may be accused of incompetence. If the person known to have diabetes fails to keep well, the skill and experience of the attending physician may be questioned.

The experience of a patient seen recently illustrates a number of important problems in connection with the diagnosis and treatment of diabetes.

### Case Report

A farmer, aged 65 years, came with his wife last October to visit a niece living near Boston. She noticed that he had become thin, and learned that he had been failing in health for two years. His weight had fallen from 176 to 138 pounds, and in addition he had the other cardinal symptoms of diabetes—polydipsia, polyuria, and polyphagia. The niece, who was a trained nurse, tested his urine, found sugar, and at her insistence he came to the Lahey Clinic immediately.

Inquiry regarding his past history revealed that sugar had also been found in the urine three years before. He had restricted his diet for a time. The urine was free from sugar, and after several months he abandoned treatment. He said that he had been advised to diet because he had "too much sugar," but had never been actually told he had diabetes. Yet he had a half-sister who had definite diabetes requiring treatment with insulin. He had naturally suspected that he might have diabetes too, but he could not bring himself to the point of admitting it and shrank from consulting his physician again for confirmation of the diagnosis which he feared.

Examination of the urine at the clinic showed the presence of 7 per cent sugar, the blood sugar

was 290 mg. He was placed on the B<sub>1</sub> diet (one of our standard diets containing 120 Gm of carbohydrate) and also given daily treatment with 10 units of protamine zinc insulin before breakfast. This treatment brought about rapid reduction of the glycosuria and soon checked it completely.

The examination led to the discovery of an important complication: there was an epithelioma of the lip. It had been treated with radium five months previously but the lesion was still present. The patient entered the hospital on November 5 for excision of the growth and resection of the glands of the neck. Careful attention was given to the control of diabetes. It soon became evident that this was imperative. Before operation the 10 unit dose of protamine zinc insulin was adequate to control glycosuria; the blood sugar was down to 108 mg. Immediately after the operation there was need for much more insulin and the dosage was increased until he received 62 units in one day. During convalescence the amount needed rapidly decreased and on dismissal from the hospital on November 19 he was using 30 units of insulin.

The dosage was reduced gradually thereafter. When he was seen at the clinic on February 14, 1938, he was using a diet with 140 Gm of carbohydrate and taking 10 units of insulin daily. The diabetes was under control, and he and his family were amazed at the improvement in his health. He wondered why he had tolerated his previous poor health for such a long time without seeking medical aid. He realized that he himself was to blame, but at the same time he could not understand why the physician who had attended to him previously when he had the radium treatment of the epithelioma of the lip had failed to test the urine, and why the physician who had advised restriction of the diet three years before had failed to follow up the matter.

### Diagnosis of Diabetes

Recognition of diabetes is a simple matter when all of the cardinal symptoms are present, as was true when this man came to the clinic, but a definite diagnosis was delayed for three years because of four common errors.

The glycosuria when noticed first three years previously had not been accompanied by these symptoms, and as is often the case, it was evidently considered of trifling importance. One must not wait for the symptoms of diabetes to appear. The symptoms are absent in the majority of cases at the beginning and one cannot

afford to miss the opportunity to make the diagnosis early. One should always have a blood sugar test. Glycosuria, if accompanied by hyperglycemia, indicates definite diabetes.

No change should be made in the diet until the cause of the glycosuria has been determined. If the blood sugar is above 0.13 fasting or 0.16 after the meal, the diagnosis of diabetes is established. Restriction of the diet before the blood sugar is known may cause both glycosuria and hyperglycemia to disappear, and the chance of easily finding diabetes at this stage is then lost. If the glycosuria is due to diabetes, the true diagnosis must be faced at the beginning. To attribute it to "eating too much sugar" or to nervousness or to injury or some other such cause may not only lead to disappointment later on when the true condition is revealed, but may permit complications to develop in the interval.

The urine had not been tested when the patient was receiving treatment of the lesion on the lip. Careful inquiry about the patient's general condition at the time might have aroused suspicion of diabetes, but in any case urinalysis would have shown sugar. Routine urinalysis by physicians in every specialty cannot be omitted without risk of letting such cases slip by unrecognized.

The patient himself was responsible in large measure for the unchecked progression of his disease. He failed to give the whole story to the physicians caring for him. If he had volunteered information regarding the temporary glycosuria three years previously, and if he had mentioned his symptoms, the diabetes would have been recognized and treated at least five months earlier. Although he himself suspected and feared that he had diabetes because of his knowledge of his sister's symptoms, in accordance with the common failing of human nature, he preferred to avoid facing the truth. This attitude is a common obstacle to diagnosis of diabetes. In the interests of the patient and for the protection of his own reputation, it is all the more important for every physician to make routine urinary



sis, and when sugar is found, blood sugar tests in addition

### Dietary Treatment

The treatment was begun by using one of the standard diets which we employ. These ready-made diets can be adapted to meet the needs of most patients, and their use simplifies the work of the physician or dietitian. Yet it is extremely important to consider the varying requirements of different types of patients. Food habits and appetite, occupation, and other activities must be taken into account, not only at the beginning, but during the course of treatment. The standard diet was modified to suit this patient's life on the farm. The physician who watches the results of dietary treatment closely and either personally, or with the aid of a dietitian, provides for a variety of menus for avoidance of monotony and for readjustment of the diet to suit changing conditions, is likely to secure more complete cooperation of the patient and more consistent success in treatment.

Diets prescribed for diabetic patients in different centers still vary widely. Some physicians choose to give a large amount of carbohydrate food and employ insulin in almost all cases. Others prefer to give a small amount of carbohydrate, since in the majority of cases the disease can then be controlled without insulin and, if insulin is required, a relatively small dosage is likely to be adequate. A middle-of-the-road policy is most common. Our own plan is to begin as a rule with an allowance of 120 Gm of carbohydrate, increasing this amount later on, depending on the progress of the case, to 160 Gm or a little more. This permits inclusion in the diet of a satisfying quantity of carbohydrate foods. Ordinary articles of diet are used except for sweets and rich desserts. With such diets the amount of insulin needed is seldom more than 35 or 40 units a day, and the risk of severe insulin reactions is minimized.

Success can be obtained with any scheme of diet, providing that insulin is used as needed in conjunction with it to control glycosuria, but attempts to use

insulin without any regard for any regulation of the diet are hazardous. The patient who eats anything, or diets in the hit-or-miss fashion is headed for trouble. There is risk of the complications of inadequately controlled diabetes on the one hand, and risk of severe insulin reactions on the other.

Far more important than the selection of the diet plan is the training of the patient to follow it accurately. This cannot be accomplished without careful explanation and patient coaching of each individual. In following up the results of treatment at home, one must recheck every detail. Only in this way could one discover that a patient who honestly declared he was following his diet "to the letter" had actually gone far astray. He had used only the foods listed on his menu, but had increased the quantity of many of them. He may have been following his diet to the letter, but not to the ounce or gram.

I have found it helpful to explain to some patients that the adoption of a diet plan should be considered as a contract. A healthy pancreas is a slave expecting no consideration from the master. The diabetic pancreas is a privileged employee, and must have the work to be done arranged by contract. This must be adhered to just as carefully as any business agreement. Both kind and quantity of food must be given the same exact attention as hours of work and dollars of pay. The contract may be changed by agreement with the physician who acts as arbitrator, but until the case is brought into court, the contract must be honored.

### Treatment with Protamine Zinc Insulin

The use of protamine zinc insulin in the case quoted above was extremely simple. A single small dose was given in the morning before breakfast, and this was all that was required except at the time of operation. With unmodified insulin he would have needed at least two injections. The use of the new preparation was, therefore, decidedly more convenient. The manipulation of the insulin syringe was completed for the day be-

fore dressing in the morning. This is the usual experience with patients who have diabetes mild enough to permit control with 30 units of insulin or less. The need for injections of insulin before meals later in the day is usually eliminated.

In case of severe diabetes the use of protamine zinc insulin is more difficult. Its slow, prolonged action is most effective when the patient's own pancreas is strong enough to provide a permanent supply of endogenous insulin in response to the call for extra insulin action after meals. If the diabetes is so severe that more than 30 units of insulin has to be injected each day, there may be need for regular insulin to supplement the protamine insulin. Patients requiring, for example, a total of 50 units in one day, may get the best results by injecting (separately) 40 units of protamine zinc insulin and 10 units of unmodified insulin before breakfast. If treatment in the morning given in this way fails to control glycosuria, two courses may be followed. Distribution of the food allowance may be altered, giving a smaller amount of carbohydrates at the regular meal, and adding afternoon and bedtime lunches. If glycosuria still appears, the need for supplementary injections of regular insulin before the evening and perhaps the noon meal may be inevitable. In such cases the use of protamine insulin will not simplify the treatment but it may permit more ideal control of the diabetes.

In using protamine insulin one must be on guard against hypoglycemic reactions. They may appear at unexpected times, at night or in the morning before breakfast. They may also appear with less warning and may be slow in subsiding if untreated. One must, therefore, be cautious in administering large doses. The general rule is that one should not give more than 40 units of protamine zinc insulin in one day unless one is well acquainted with the response of the individual. Regular insulin can be used for supplementing protamine zinc insulin when more than this is required. Careful observation of the blood sugar level, not only in the

morning before eating, but at other times during the day, is of course, invaluable regarding adjustment of the dosage.

Insulin should be used immediately when the patient is ill or when he is suffering from a complication such as an infection, making immediate control of glycosuria imperative. In other cases the diet may be given a trial first. If that alone fails to check the increase of sugar in the urine in a reasonable time insulin should not be withheld. Even when the patient feels and looks well, failure to control glycosuria may produce harmful effects later on. In the past the treatment of insulin has often been omitted in these cases, but treatment with a single morning dose of protamine zinc insulin is usually effective, and because it is easy and simple, it should be more readily accepted by the patient.

### The Use of Protamine Zinc Insulin after Operation

Our patient was successfully treated with 10 units of insulin daily before operation but required several times this amount for some time afterward. This is a common experience. Even a simple operation may cause mild diabetes to become intense, but if the condition is carefully treated, danger can be avoided.

In the past it has been usual to divide the amount of insulin required for the day in three or sometimes four injections, adjusting the dosage upward or downward depending on the results of tests of the urine and blood sugar at frequent intervals. The appearance of glycosuria all day long shows that the total dosage of insulin should be increased, glycosuria in only part of the day indicates not an increase but a redistribution of the dosage.

Additions to the morning dose can be made boldly, but additions to the evening dose should be made cautiously because of the possibility of cumulative effect at the end of the day. For a person who has required 60 units of insulin one day, one may order 25 units to be given the next morning followed by 10 to 15 units before the noon and evening meals.

and 5 units at bedtime, depending on the results of the test.

The use of protamine zinc insulin helps to give stability to the blood sugar level, and when used after operation in conjunction with unmodified insulin one may secure more satisfactory control of the diabetes. In using a dosage in the neighborhood of 60 units of insulin in one day, one may order 30 units of protamine zinc insulin and 10 units of regular insulin before breakfast, and for the remainder of the day, 5, 10, or 15 units to be given before the noon and evening meals, depending on the results of the test.

In giving supplementary doses of regular insulin at noon and in the evening, one must always keep in mind the fact that part of the protamine zinc insulin given in the morning is still working. In judging the dosage of regular insulin to be employed, one may calculate that one third of the total amount of protamine insulin is actually acting at each mealtime. One can deduct this third from the amount one would have prescribed in using only regular insulin. The balance will then be the proper dose of regular insulin.

### Follow-up

When our patient was dismissed from the hospital he was advised to return to his family doctor, and a letter was sent to the physician reporting the findings and recommendations. Patients who fail to have medical supervision so often encounter needless difficulties, and may readily become neglectful of treatment. For this reason special efforts should be made to establish and maintain this contact with the doctor. A letter of inquiry will be sent to this patient at intervals. He will be asked to give his doctor an opportunity to check up on his condition and to make a notation on

the report form before it is mailed back. Recommendations will then be given regarding subsequent management.

Changes in regard to the diabetic status may be expected to occur as time goes on. On this account the patient returned on February 14, and will again return from time to time for study and advice. The treatment with insulin may perhaps be discontinued and the diet may require change. In any case, the progress of the diabetic patient and the adjustment of his treatment will be handled in conjunction with the family doctor.

### Prognosis

Our patient is now back on his farm and should be ready to resume all his usual activities when the spring work begins. There is good reason to expect further improvement in his condition, and eventually he may be able to live on a satisfactory diet without the need for insulin injections. As is the case with other diabetic patients who learn how to take care to keep the urine sugar-free, one can expect him to continue to enjoy a successful, useful, and contented life.

### Summary

Early diagnosis of diabetes may be easily achieved through attention to a simple but often neglected policy—routine urinalysis followed, when glycosuria is discovered, by determination of the blood sugar before restriction of the diet.

The use of protamine zinc insulin makes the treatment of diabetes easier, since in the most severe cases a single injection daily is usually adequate. Even when regular insulin has to be used to supplement the effect of protamine insulin, the latter is advantageous in maintaining more stable control. This is particularly valuable in the control of diabetes after operations.

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Waste engine cylinder oil is being used by American doctors in China to make ointment to treat severely burned patients in hospitals that are entirely out of surgical dressings. One doctor did fifty major operations in eight days.

Few physicians die of tuberculosis despite the fact that they are constantly exposed to it. Knowledge defends them, as it may yet defend other groups in the population when properly educated in self-protection.—*Neb State M J*

# INDUCED PNEUMOTHORAX AND PHRENIC NERVE INTERRUPTION

BRUNO S HARWOOD, M.D., Saranac Lake, New York

**R**EST is one of the most important, if not, as a matter of fact, the most essential single factor in the successful treatment of pulmonary tuberculosis. No matter what means are employed, the object must be the immobilization of the affected area, closure of cavities with consequent conversion of the sputum, and the improvement of the patient's general condition.

This is best accomplished by collapse therapy, which during the past twenty five years has gradually displaced expectant treatment to such an extent as to make every tuberculous patient a prospective candidate for collapse treatment. This may be induced pneumothorax, phrenic nerve interruption, thoracoplasty, or a combination of these methods. When physicians began to administer pneumothorax treatment in the United States, only patients who had advanced, more or less unilateral, pulmonary tuberculosis were considered suitable for the treatment, because of lack of experience in this method of therapy and the fear of its results. The first cases in which I induced pneumothorax in 1914 were practically moribund. It was felt that nothing could be lost in attempting a treatment, that might possibly prove successful, even though its application was still in its early stages and not well known at that time. During the past decade opinions have changed considerably in regard to pneumothorax therapy.

Whereas formerly, patients considered suitable for this treatment were moderately advanced or advanced unilateral cases, occasionally with slight involvement of the contralateral lung, at present pneumothorax is induced in all stages of the disease, even in advanced bilateral tuberculosis, although the chances of

success are inversely proportional to the extent of the involvement. There are still many patients who cannot be subjected to collapse therapy and who have to be treated expectantly, with due regard to the well known factors of mental and physical rest, proper nourishment, and an abundance of clean, invigorating air in a suitable climate. It should be borne in mind that collapse therapy alone, without climatic or fresh air treatment, is not an ideal procedure, although it is practiced extensively. Experience has shown that the number of contraindications to the induction of pneumothorax is less than formerly believed.

The principal contraindications are cardiac disease, severe intestinal disturbance, massive infiltration, and asthma or emphysema, which will aggravate the patient's condition by increasing the dyspnea. Although pneumothorax has been given successfully to patients of advanced years, many failures have resulted in elderly patients because of the frequent occurrence of fibrous bands or adhesions. Nevertheless, I have found some middle-aged patients improving remarkably following prolonged pneumothorax therapy, after I had almost given up hope of benefiting them and had been on the verge of discontinuing pneumothorax inflations. I mention this because many physicians feel that if the pneumothorax is unsuccessful within a few weeks of its initial administration it should be discontinued. Collapse of an extensively diseased lung is likely to cause a contralateral bronchial spread with disastrous consequences to the patient. However, in deciding whether pneumothorax should or should not be induced in a borderline case, it is advisable to decide in favor of pneumothorax treatment. The result may be surpris-

ingly good. Most phthisiotherapists agree at present that induced pneumothorax is the procedure of choice as a primary therapeutic measure. This simple treatment is, in the vast majority of instances, free from danger or even disagreeable complications. Unfortunately, physical obstacles prevent its application in many cases, even though all indications for its use may be present.

Other treatment must then be considered primarily phrenic nerve interruption. Indeed some men advocate a phrenic nerve operation as an initial procedure, in preference to the induction of a pneumothorax. They argue that the operation is a very simple one, and that one procedure will accomplish as much as a great many pneumothorax inflations. Most lung specialists do not subscribe to this view. On the contrary, it is felt that the frequent contact of the physician with the patient, necessitated by the pneumothorax reinflations, exerts a salutary effect on the patient's mental and physical condition.

**T**HERE is still no unanimity of opinion with regard to pneumothorax treatment in cases of minimal pulmonary tuberculosis. Opponents of collapse therapy at this stage of the disease claim that such patients recover without induced pneumothorax or phrenic nerve interruption, occasionally even without any treatment, and that, therefore, they should not be subjected to either of these procedures. However, among others, Turner and Collins<sup>1</sup> advocate immediate induction of artificial pneumothorax in definitely diagnosed minimal cases. They conclude that a policy of "watchful waiting" for evidence of progression proved costly and dangerous in several cases and even fatal in a few. They favor artificial pneumothorax rather than a phrenic nerve operation, as in their study the pneumothorax group did much better than the phrenic group. According to them the operative risk in minimal cases is negligible. The percentage of cases with a free pleural space is high. A high percentage of effective collapses is a

guarantee of good results. Complications are infrequent. Conversion of sputum is prompt and certain. The conversion time, hospital stay, and total disability are definitely decreased. Pregnancy in minimal cases is well tolerated, if supported by pneumothorax. A minimal tuberculous lesion in an individual of "teen" age is an absolute indication for artificial pneumothorax without delay.

Pollak,<sup>2</sup> in a report on 461 patients, states that 130 pneumothorax attempts were made, of which 92 were successful. Sixty-six phrenicectomies were performed. He advocates induction of pneumothorax in the minimal stage, but restricts it to sputum positive cases. A clear exposition of the subject can be found in the June 12, 1937, number of the *J.A.M.A.*<sup>3</sup> In answer to a query the author states "It appears that artificial pneumothorax has a definite place in the treatment of progressive, minimal pulmonary tuberculosis." He continues in substance that a patient at bed rest, asymptomatic or even while gaining weight, may have a progressive lesion or a contralateral spread. Collapse of the diseased area definitely inhibits proliferation of tubercle bacilli and stimulates formation of scar tissue. These results should be brought about at the earliest possible moment. If the lesion has not yet broken down, pneumothorax in most minimal cases closes it, and the sputum becomes negative and disappears. It is better to treat tuberculosis by pneumothorax before cavities and adhesions have formed, before large volumes of lung tissue have become involved, and before general health has become undermined. He concludes that pneumothorax is not a radical procedure, but that it is standard treatment. It is not as radical and drastic as a long period of bed rest. Myers and Levine,<sup>4</sup> in a report of 52 progressive, minimal cases treated by artificial pneumothorax, state that their results were better than in moderately advanced or advanced cases similarly treated, they were also better than in minimal cases treated with bed rest alone.

Since the probability of obtaining satisfactory results is admittedly better in early, unilateral cases than in more advanced ones, most physicians doing pneumothorax work are of the opinion that time should not be lost in prolonged periods of observation in the presence of active pulmonary tuberculosis. Prompt administration of pneumothorax in early cases of pulmonary tuberculosis is productive of most satisfactory results, frequently even dramatic in their rapid appearance. Those of us who in previous years have observed the slow, lingering course of tuberculosis, even in favorable cases, cannot help feeling astounded at the speedy return to relative well being of patients treated with artificial pneumothorax. I am inclined to subscribe to the opinion of many observers, who state that once it is established that a patient is suffering from active pulmonary tuberculosis, with or without positive sputum, pneumothorax should be induced without delay. A prolonged observation period may not only fail to benefit the patient, but may harm him seriously and even prevent subsequent induction of a successful pneumothorax. A prolonged period of expectant treatment, consisting of absolute bed rest, is highly desirable, although it is very difficult to enforce outside of a sanatorium or a well-directed cure cottage. It is essential in all cases that are not suitable for collapse therapy, but it should not be made a substitute for the latter, if pneumothorax can be induced. Expectant treatment is necessarily of long duration and entails a great financial burden, frequently more than the patient or his family can bear. Progression of the disease, which is apt to take place in spite of the most careful attention to rest and diet, spread due to the occurrence of hemoptysis, and the likelihood of the formation of adhesions, should be valid arguments against delay in the administration of induced pneumothorax. When the sputum is positive for tubercle bacilli, no time should be lost, even though physical and roentgen ray examinations fail to disclose cavity forma-

tion. The presence of cavities is a definite indication for collapse therapy. If they are not amenable to closure by means of pneumothorax, other methods of lung collapse should be used.

**P**NUMOTHORAX may be accompanied by complications. The most common of these is an accumulation of fluid in the pleural space. Such an occurrence is in most instances quite harmless. Usually the fluid is slight in amount, and it disappears spontaneously. When it accumulates to such an extent as to produce dyspnea or other disturbances, it becomes necessary to aspirate it. Some physicians prefer to aspirate even in the absence of dyspnea, in order to prevent the formation of pleural adhesions. Others have expressed the opinion that the presence of fluid is advantageous in that it helps to maintain the collapse and also because it may aid in the fixation of a movable mediastinum. This latter condition may result in pressure upon the mediastinal contents and the contralateral lung at the same time preventing a satisfactory collapse of the affected lung. Should the fluid become purulent, it may be removed by aspiration if it is deemed necessary. In the event of a mixed infection, good results have been obtained from the addition of small amounts of dyes, after aspiration of the purulent fluid. Occasionally gastric disturbances are caused by the pressure of the pneumothorax, especially when the latter is on the left side. On rare occasions so-called pleural shock may occur. It is a disagreeable complication, but one of short duration and free from danger. A really serious and at times fatal complication is air embolism. Fortunately, it is relatively rare.

The most frequent and most formidable obstacle to the successful administration of induced pneumothorax is the presence of adhesions between the pleural surfaces, preventing the introduction of air. Occasionally small pockets are encountered that can be filled with air, but such inflations are not productive of good results. They are likely to make



FIG 1, CASE 1 J H Cavity in right upper lobe has been increasing under pneumothorax treatment



FIG 2, CASE 1 J H Cavity is not visible, after phrenicectomy

the patient very uncomfortable because of the pressure of the air, without resulting in a successful collapse of the diseased tissue. Under such circumstances a phrenic nerve interruption should be performed. This operation is indicated when the lung cannot be collapsed because of adhesions, when the diseased area cannot be collapsed for the same reason, when the lesions are located in the lower part of the lung, and when, following induction of a pneumothorax, cavities remain open or even become larger due to the pull exerted on the cavities by bands or adhesions be-

tween the two pleural surfaces. It is obvious that no treatment of pulmonary tuberculosis can be considered successful that does not accomplish the closure of the tuberculous cavities. A phrenic



FIG 1, CASE 2 H P Involvement of right lung below third rib with large cavity between third and sixth ribs anteriorly

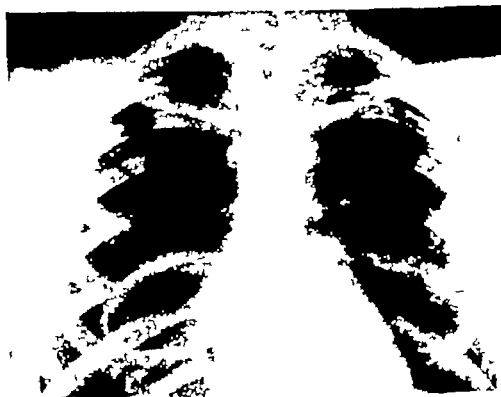


FIG 2, CASE 2 H P After third pneumothorax inflation. Marked increase in size of cavity

nerve crushing, which is considered preferable to other phrenic nerve operations, results in a rise of the hemidiaphragm on the affected side, a reduction of the respiratory movement, decrease in the size of the hemithorax, and finally relaxation and partial collapse of the lung. In a pneumothorax that is supplemented by a phrenic nerve interruption there is a resulting relaxation of the bands extending from the wall of the cavity to the

The following is a list of the names of the persons who have been appointed to the various committees of the House of Representatives for the session of 1917-18.

**Committee on Education**

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**CANCER REPORTABLE**

Under a law enacted at the last session of the State Legislature cancer is now a reportable disease. Physicians must immediately notify the Health Department of any cases of malignant tumor which come under their care. This applies to pathologic laboratories, also. All hospitals and tissue specimens must promptly be reported.

Officially the new statute has been in effect since July 1. Actually enforcement has been delayed by the lack of suitable reporting forms and filing arrangements within the Health Department of Health. The Department is preparing these, however, and once they are distributed physicians will be held strictly accountable for failures to comply with the law.

**JOINT LIAISON WANTED**

Health had just opened this new office. His wife and boy had been called to inspect the city. Not only did they find the office appointments unusually much in contrast to the hospital employees were equally so.

During the inspection the health was called away to the telephone and the conversation between Mrs. Smith and her husband resulted in long-held talks.

"Have you put up any fruit this year?" asked the friend.

"Not yet," replied Mrs. Smith. Then her gaze wandered over to several pretty striped apples and she added, "But I expect to put a few peaches before long." Mrs. Smith



# FATAL PRODROMAL MEASLES

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*(Attending physician, Amsterdam City and St. Mary's Hospital, and Epidemiologist, State Department of Health, Respectively)*

IT HAS become customary to consider measles a serious disease of childhood only in the presence of complications, usually of streptococcic origin. In a review of the literature we failed to find a report of a case in which death was associated with the pathologic lesions of prodromal measles.

## Case History

The patient, D. B., was 21 months old and was the youngest of three children. The two older boys, aged 6 and 5 years, respectively, were known to have been exposed to measles in school. Measles was present in epidemic form in the city of Amsterdam starting in the summer and reaching its peak about the middle of December. The time relationship of family cases is shown in Table 1.

This boy was seen first on September 25, which was the day on which one of the brothers had his first symptoms of measles. The mother reported that this youngest boy did not seem ill, but that he occasionally had attacks of severe, harsh coughing accompanied by some shortness of breath. His temperature was 100 F. He was put to bed, given steam inhalations, and expectorants. For the next three days, he had no fever, but continued to cough and to have some dyspnea, which was worse at night. On the third day of his illness, an x-ray of the chest was taken to exclude possibility of an aspirated foreign body. This plate was reported negative. For the next ten days he appeared well and his coughing attacks became progressively less severe. On October 9 at 1:00 P.M., just fourteen days after the appearance of his first symptoms, he had a sudden onset of severe dyspnea accompanied by marked inspiratory difficulty.

After consultation, another x-ray of the chest was taken. Possibility of a nonopaque foreign body at the level of the larynx was reported on the basis of this plate and bronchoscopy was advised. The child was still afebrile and at intervals had some relief of his dyspnea. At 10:00 P.M., he was anesthetized with ether and bron-

choscopy attempted. The mucous membrane of the pharynx was not inflamed but there was marked edema of the larynx, making it impossible to pass a 4-mm. bronchoscope. While the child was under anesthesia, it was noted that the respirations were not labored. At the completion of this procedure, the child suddenly ceased breathing but was quickly revived by artificial respiration. Because of this, it was decided that a tracheotomy was necessary. While preparations were being made, the child again ceased breathing. The tracheotomy was done hastily and oxygen administered, but the child could not be revived. Death occurred at 11:45 P.M., less than twelve hours after the onset of acute dyspnea.

Autopsy was performed one hour after death by Dr. Kurt Semsroth, director of the Montgomery County Laboratory.

## Autopsy Findings

The body was that of a well-developed, well-nourished male child with pallor of the entire body and some puffiness of the face. A closed tracheotomy wound was present in the neck.

On opening the trachea and larynx, several flat ulcerations 2 mm. in diameter were found in the larynx 5 mm. below the vocal cords. The mucosa of both the trachea and bronchi was swollen and injected. The main bronchus had a slitlike lumen 2 to 3 mm. in width. The lungs were crepitant throughout except for the middle lobe on the right side, which was reddish gray in color and moderately edematous.

The most striking feature of the microscopic sections was the presence of numerous polynuclear giant cells with hyperchromatic, densely packed nuclei. These giant cells were present in great numbers in the tonsils, the laryngeal and tracheal mucosa, and also in the thymus and the spleen. Large clusters of giant cells were found in the base of the superficial ulcers in the larynx. The respiratory mucosa showed an exudate of lymphocytes and plasma cells, with occasional polymorphonuclear leukocytes. The middle lobe of the lung showed an intra-alveolar edema, as well as giant cell formation in the epithelium of the larger bronchi.

TABLE 1—TABLE OF FAMILY CASES

	J G—5 Yrs. Exposed to Measles in School	J G—8 Yrs. Exposed in School	D G—21 Mos. No Known Exposure Outside Home
Sept. 25	Fever T 101 F	No complaints	Intermittent cough and mild dyspnea T 100 F Afebrile
26	↓	↓	↓
27	Measles rash	↓	↓
28	Abdominal pain T 101 F	↓	↓
29	Appendectomy (appendix ruptured)	↓	↓
30	Peritonitis draining	↓	↓
Oct. 1	↓	Sore throat T 103 F	↓
2	↓	Cough	↓
3	↓	Measles rash	↓
4	↓	↓	↓
5	↓	↓	↓
6	↓	↓	↓
7	↓	↓	↓
8	Wound healing	↓	↓
9	Recovery	Recovery	Sudden onset of acute dyspnea at 1:00 P.M. Bronchoscopy at 10:00 P.M. Death 11:45 P.M.

Sections of other organs showed nothing abnormal.

## Discussion

Laryngitis of some degree is so frequently a concomitant of measles that it may be considered a symptom rather than a complication. Rarely does it become a serious menace to the welfare of the patient.

In this instance a young child with a known intrafamilial exposure had respiratory symptoms over a period of two weeks which were improving at the time of the onset of acute dyspnea. At no time during this final episode did the child have fever and he showed no evidence of toxicity. The spasm of the larynx noted at bronchoscopic examination was apparently due to the edema and the subacute inflammatory reaction surrounding the large giant cells, which were particularly numerous in this area. The edema of the bronchi and of the middle lobe indicated that changes had already taken place in the lung before any of the more usual prodromal symptoms of the upper respiratory tract had appeared. The lack of acute inflammatory changes and the absence of organisms in sections of the mucous membrane would seem to rule out a suddenly superimposed streptococcal infection.

The giant cells described above are identical in appearance with those originally reported by Alagna<sup>1</sup> in 1911 as oc-

curing in children with measles who had died at the height of the exanthem with signs of laryngeal obstruction. However, this finding was lost sight of until 1931, when Warthin<sup>2</sup> and Finkeldey<sup>3</sup> simultaneously reported the finding of these giant cells in prodromal measles. Subsequently they have been described in lymph nodes, in respiratory epithelium, adenoids, tonsils, and in the appendix. In the present case they were also found in large numbers in the thymus. They are found in the prodromal stage of the disease and tend to disappear as the exanthem reaches its height. Presumably they represent the reaction of the tissues to the exciting cause of the disease, probably a virus. They have not been reported in experimental measles.

It is worthy of note that none of the 3 cases of measles in this family was typical. The first boy developed appendicitis during the exanthematous stage of the disease. The second boy began his measles attack with acute follicular tonsillitis, and the third child developed acute dyspnea at the onset.

## Summary

We have presented a case of death due to laryngeal edema occurring in a 21-month-old child. Autopsy showed the presence of large numbers of multinuclear giant cells, characteristic of the tissue reaction in the prodromal stage of measles. In the presence of a similar clinical pic-

ture when the possibility of a foreign body has been ruled out, intubation for a period of hours during the height of this reaction in the larynx is indicated

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(For critique of this article see correspondence below—*Editor*)

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## Correspondence

### To the Editor

I have read with great interest the manuscript, "Fatal Prodromal Measles," by Drs Homrighouse and McKee. The article is succinctly written and is on a subject which is sufficiently unusual to intrigue anyone interested in communicable disease.

Despite the fact that in their introductory paragraph the authors state, "death was associated with the pathologic lesions of prodromal measles," the title itself, "*Fatal Prodromal Measles*," as well as the statement in the discussion that "the spasm of the larynx was apparently due to the edema and the subacute inflammatory reaction surrounding the large giant cells," clearly imply that death was due solely to the characteristic tissue reaction set up in prodromal measles.

It does not appear to me, or to two of my associates at the Willard-Parker Hospital, that there is clear-cut proof that the measles was primarily and solely responsible for death. The prolonged clinical course, the ulcerations found in the larynx at autopsy, and the uncertain part played by the mechanical manipulations and anesthesia would indicate that some other factor may have been present and that the exitus lethalis was associated with but not necessarily caused by the prodromal measles.

I believe that this excellent paper will provoke wide discussion.

Very truly yours,  
JOHN FITCH LANDON, M D

112 East 74th Street  
New York City  
September 15, 1939

### S 1620

The "Wagner Health" Bill is S 1620. The number has a familiar sound. It jogs the memory. We have heard it before.

It is the date of the landing of the Pilgrims at Plymouth Rock. 1620.

Pilgrims

Leaving England to escape oppression by government. In 1620.

Arriving at Plymouth Rock. Free and independent. Ancestors of many of us.

Founders of independence. In America.

In 1620. Their descendants were revolters against unjust taxation in 1775.

Defenders of independence in 1776.

And 1812.

Again 1620.

This time, S 1620.

The Wagner Health Bill.

The same numbers, but a different spirit.

A spirit of dependence.

A spirit of dependence on the Federal Government.

Creating enormously increased taxation.

Creating a new Federal compulsion.

S 1620, importing to America the oppressive

practices of Europe which the Pilgrims came here to escape.

In 1620.

And which countless refugees are even now fleeing in hunted desperation. Yet.

Europe has compulsory sickness insurance.

Europe has State medicine, government-controlled doctors, regimented populations, all the benefits which S 1620 would import for our betterment.

Why then must foreign governments rigidly control emigration?

Why must the barriers be erected in this country against immigration?

This is still our country.

We can make of it what we please.

Independence or dependence is a matter of spirit.

Both are costly. But independence is worth the price.

They decided that.

In 1620.

Again in 1776.

In 1939,

?

—"L D R" in the Westchester Medical Bulletin

# THE PREVALENCE OF CORONARY ARTERY OCCLUSION

ARTHUR M. MASTER, M D, HARRY L. JAFFE, M D, and SIMON DACK, M D,  
New York City\*

(From the Cardiographic Laboratory The Mount Sinai Hospital New York City)

**T**HIS investigation was undertaken in order to determine for the first time the actual incidence of coronary artery occlusion in the general population

Heart disease has become the chief problem confronting the physician. It has been the leading cause of death in the United States since 1912. In 1925 it was estimated that at least 2,000,000 people in the United States were affected by it,<sup>1</sup> and in 1936 cardiovascular disease was registered as the cause of 371,675 deaths.<sup>2</sup> In 1937 it was responsible for 13.9 per cent of all deaths.<sup>3</sup>

The commonest type of heart disease is coronary artery sclerosis. The increase in the number of cardiac deaths reported in recent years has occurred entirely in persons over the age of 45 years suffering from coronary artery disease, whereas death in cardiac disease under 35 years of age, which is usually the result of rheumatic fever, is actually diminishing.<sup>4-6</sup> Forty to 50 per cent of all cardiac disease and deaths are caused by arteriosclerotic heart disease,<sup>1,7-9</sup> in 1936, 48,622 deaths in the United States were ascribed to it.<sup>2</sup> It was found in 25.9 per cent of 2,877 consecutive autopsies in a large New York City hospital.<sup>10</sup>

Although coronary disease is so important, there are no available figures of its incidence in the general population. This is particularly true of coronary artery occlusion, the most frequent and serious end result of coronary artery disease. The chief reason for this lies in the fact that mortality statistics are based on the International List of the Causes of

Death,<sup>1</sup> and only since 1930 have most of the diseases of the coronary arteries been included under the general title of diseases of the heart. Even today, coronary occlusion is listed under coronary artery disease and not as a separate cause. In addition, numerous obsolete or indefinite terms, such as myocarditis, cardiac dilatation, dropsy, heart failure, senility, etc., have been employed, and heterogeneous types of heart disease have been grouped together with very little effort made to differentiate the individual diseases on an etiologic basis.<sup>9</sup> Furthermore, in accordance with the Manual of Joint Causes of Death,<sup>1</sup> certain diseases are given preference over others as the cause of death, with little or no scientific justification. For example, chronic nephritis takes precedence over any type of heart disease when both appear on the certificate. As a result, deaths from coronary artery occlusion are actually recorded in large number as due to other causes. A study of the statistics of upstate New York in 1937 reveals the fact that in 40 per cent of all death certificates mentioning coronary artery disease, death was assigned to other causes, and, in more than three quarters of these, to other heart diseases. Similarly Hedley\* in 1934 found that, although coronary artery occlusion appeared as a primary cause or contributory factor on 259 death certificates in the District of Columbia, it was tabulated as the cause of death only 78 times. Yet it may be assumed almost without exception that when coronary occlusion is present death should be attributed to it.

Another factor making it impossible to accept mortality statistics as a basis of the true incidence of coronary artery disease and occlusion is the frequency of error in diagnosis in previous years. Al-

\* In collaboration with J. V. DePorte, Ph.D., Director, Division of Vital Statistics, State Department of Health, Albany, New York.

D. C. Distributed by the Bureau of Census, Washington.

D. C. Published by the Bureau of Census, Washington.

though Herrick<sup>11</sup> published his first observations more than twenty-five years ago, the correct diagnosis of coronary occlusion has only recently become widespread and is still not established in many localities. We know that a considerable proportion of deaths attributed, for example, to chronic myocarditis might properly be considered as having been caused by coronary occlusion. It also is true that most, if not all, deaths from angina pectoris are really coronary occlusion fatalities.<sup>9</sup> Furthermore, atypical cases of coronary artery occlusion are often mistakenly treated as some other condition, not cardiac at all, and are therefore not recorded as coronary occlusion.

It is obvious, therefore, that there are no published statistics of the incidence or mortality rate of coronary occlusion, and that those available about coronary artery disease are very unreliable. It has occurred to us, however, that an approximate estimate of the number of cases of coronary occlusion in the entire country could be obtained by studying the death certificates in which some form of heart disease was given as the cause of death.

The first calculation is based on a review of such certificates from upstate New York filed with the New York State Department of Health in 1937. Death was ascribed to coronary artery disease in 3,990 cases, but a close analysis of the cause of death in a random sample of 500 death certificates pointed to the conclusion that at least 60 per cent of these deaths were really the result of coronary occlusion. Therefore, approximately 2,394 deaths attributed to coronary artery disease were produced by coronary occlusion. To the latter may also be ascribed at least 80 per cent of the 947 deaths recorded as angina pectoris, i.e., 758 deaths. In addition, there were 18,020 deaths due to other diseases of the heart, such as chronic myocarditis, myocarditis unspecified, etc., (exclusive of pericarditis, acute endocarditis, and acute myocarditis). It was found, from the study of a random sample of death

certificates, that at least 25 per cent of these deaths, or 4,505, had, without doubt, been caused by coronary occlusion. Thus, in the year 1937 the total loss of life from coronary occlusion in upstate New York was 7,657. Since the population of the United States is about twenty-three times that of upstate New York, and assuming that conditions in the country as a whole are not significantly different, we obtain as the estimated number of deaths in the entire country  $7,657 \times 23$ , or 176,111. Since the fatality rate of coronary occlusion is between 30 and 25 per cent, the annual total number of cases is 587,040 to 704,444.

It is true that the population of upstate New York is somewhat older than that of the remainder of the country and therefore might be expected to have more deaths from coronary occlusion. This overestimate, however, is more than compensated for by the fact that the computation did not take into consideration deaths in which coronary disease was classed as a secondary cause, although actually the primary cause. This number is considerable. In 1937, disease of the coronary arteries was given as the primary cause in 3,990 deaths, while in 2,793 deaths it was entered as secondary to some other condition.

In a similar manner we have analyzed the deaths in the entire United States attributed to diseases of the coronary arteries. These totaled 48,622 in 1936,<sup>3</sup> the latest year for which information is available. Taking 60 per cent of this number, we obtain 29,173 as the estimated number of deaths from coronary occlusion. Adding 80 per cent of the 17,760 deaths ascribed to angina pectoris, or 14,208, and 25 per cent of the 264,587 deaths due to other diseases of the heart (excluding pericarditis, acute endocarditis, and acute myocarditis), or 66,147, there is a total of 109,528 deaths from coronary occlusion. Applying the fatality rates of 30 and 25 per cent, we find 365,093 cases as a minimum estimate, and 438,112 as a maximum. Both of these figures are decidedly too low because no account has been taken of the deaths

from coronary artery disease which were considered secondary to other diseases.

The estimates thus range from 305 000 to 704,000 cases per year.\* It is probable that a figure midway between these limits is conservative, in other words, the annual number of cases is at least half a million. High as this number is, it is probably below the actual number of attacks, for several reasons. In the first place, we have not considered persons under the age of 40. The number of attacks that occur between the ages of 30 and 40 years is not negligible, comprising as it does 5 to 10 per cent of all cases. Secondly, we calculated our total on the assumption that the mortality rate in coronary artery occlusion was at least 25 per cent. Actually this figure may be too high, for it is based on hospital cases, which are apt to be severe, the mortality rate in initial attacks of occlusion, which are the most numerous, is nearer 10 to 15 per cent. Thirdly, as postmortem observation has demonstrated, a not inconsiderable number of deaths due to coronary artery occlusion are not recognized as such because they simulate other diseases, particularly pulmonary or gastrointestinal, and not infrequently in the guise of an "acute abdomen." Finally, in a number of patients the attack may not seem severe enough to require the attention of a physician and so it is not recorded as coronary occlusion.

If we assume that 500,000 attacks of coronary artery occlusion are sustained each year, and since there are approximately 21,000,000 males and females over 40 years of age, the annual incidence of coronary artery occlusion is 1 attack in 54 males and in 189 females, over the age of 40 years, the ratio of men to women sustaining coronary occlusion being about 3.5 to 1.<sup>17</sup>

It is pertinent to inquire whether the

prevalence of coronary artery disease and occlusion at the present time represents a genuine increase in incidence over former years, as a number of authors maintain.<sup>18-21</sup> We do not agree with this point of view, and believe that the rise in the incidence of coronary artery disease can be accounted for on other grounds.<sup>22-24</sup>

We have already mentioned the improvement in the diagnosis and vital statistics of coronary artery occlusion. Deaths are no longer attributed to acute indigestion, cholecystitis, perforated ulcer, pancreatitis, pneumonia, etc., in cases now recognized as coronary artery occlusion. Simultaneously, clearer diagnoses on death certificates have replaced the terms previously used.

No longer are dropsy, myocarditis, and heart failure acceptable as primary causes of death. The published statistics in recent years demonstrate the influence of these changes. Thus, deaths due to coronary artery disease in industrial policyholders were recorded to have increased from 4.7 per 100,000 in 1930 to 43.1 in 1938<sup>25</sup>, also in New York State, exclusive of New York City, there were 849 coronary disease deaths in 1931 and 3,990 in 1937. Increases of such magnitude in a few years cannot be real.

Another explanation for the increase in coronary artery disease is the longer duration of life at present, owing to the reduction in the incidence and mortality of infectious diseases at all ages, such as diphtheria, pneumonia, tuberculosis, scarlet fever, etc., and to improved general nutrition and hygiene. In 1900, persons over 45 years of age comprised 17.7 per cent of the population of the United States, whereas the proportion in 1935 was estimated at 24.6 per cent.<sup>26</sup> Thus, relatively more people reach the coronary artery disease age now, and naturally the number of cases with this disease has increased. However, the actual incidence in each age group is probably no greater.

In this paper we have drawn attention to the prevalence of coronary artery occlusion, not in a note of pessimism, but in order to emphasize the importance of always being on the alert for it. In past

\* A similar estimate is obtained from a consideration of the causes of death among physicians, published by the American Medical Association.<sup>17</sup> Coronary artery occlusion is specified and assuming that 80 per cent of angina pectoris deaths and 15 per cent of those from other heart diseases are due to coronary occlusion it is found that approximately 465 physicians over 40 years of age succumb to coronary occlusion annually. From this it was calculated<sup>17</sup> that 118,000 men and women in the United States die from coronary occlusion annually and that 400,000 to 470,000 attacks are sustained.

hour's appointment a few times a week for several weeks may be necessary

The first therapeutic approach is to attend to the general state of health, with adequate food intake, routine hygienic measures, massage, and medication, as indicated for specific conditions (which it is not the purpose of this paper to outline). Oftentimes depression is concurrent with, or precipitated by, organic conditions, and, because it becomes the predominant symptom, certainly is not indicative that the previous pathologic involvement is cured.

Sedatives are practically always needed at some time and the dosage and the one selected is determined by the severity of the insomnia and the restlessness of the patient. Small doses of whatever drug is selected should be used at the beginning, because it may have to be used over a long period. If large doses are required, the case is probably a more severe one than can be cared for outside a mental hospital. We have found that phenobarbital meets most requirements because it can be used indefinitely without systemic ill effects and because it seldom leaves an aftermath. A fourth of a grain in midafternoon and at 7 and 10 at night usually results in five or six hours of sound sleep. Five grains of chloral hydrate or other barbitals can be used. The important thing is not to increase sluggishness and to select a sedative that will not produce such a result as brominism.

At first, in many cases, complete physical rest is necessary to economize the psychic forces and to lessen the demand for energy output. This is more true of the mild cyclothymic cases in whose organism, for some unknown reason, there is severe apathy. Even in depressed psychoneurotics with anxiety, intense exercise and a schedule that resembles perpetual motion are unwise procedures for keeping the patient's mind off himself or for stimulating his interests. It may be a relative's or friend's way of pulling the patient out of the depression, or pulling the depression out of the patient, but the desired result

is not accomplished by lessening the reserve force of an already emotionally and, perhaps, physically depleted organism. A very accurate criterion for how much rest a patient needs is how much he seeks. He is weakened either from emotional conflict, or from physiologic dysfunction, or both, but from whatever cause—he is fatigued. Temporary stimulation has no lasting effect, but under some conditions it is necessary in order to prevent a more severe depression. If a man feels that he has to go to work and is organically able to but depressed and emotionally under par, one-sixth grain of benzedrine sulfate in the morning relieves the weakness for the time being. We believe it should be used with caution and not to the exclusion of other more permanent therapies. When the patient needs rest, two weeks in bed will do more than any stimulating drug. Some cases need no more than an afternoon nap or rest period, and it is doubtful if the depressed patient can continue through the day without it.

**A**FTER the physician's contact is secure, he can inquire about the reality situation that has brought the depression into the foreground. Many patients, if given the opportunity when being treated for physiologic disturbances, will open the discussion as a frank attempt to lessen the conflict. Particularly is this true when the family physician has given years of service and is the trusted confidant and medical adviser. He can readily learn the frustrations, the hostilities, the disappointments, and the impossible goals toward which the patient has been striving. He may be familiar with the previous background and familial setting but, if not, it needs to be known. To understand a personality, it is essential to appraise the manner by which he has met life's difficulties, to learn about his personal relationships both to his family and others, his sexual and emotional adjustments, and his evaluation of his place in society.

Perhaps only a question or two is needed for the patient to let the doctor

know him. A barrage of rapid fire direct questions is no more the way to obtain a personal history for an emotional disorder than it is in any disease. By explaining to the patient the nature of his difficulty and the bearing that previous reactions to self and others has on his present condition, he is encouraged to volunteer much. He feels free to give vent to his pent up emotions because the sense of guilt, common to all mankind and intensified in depression, is lessened. Some patients resent the giving of their histories and, although it is essential, it need not be pressed for. Like the completion of a jigsaw puzzle, it will, in time, unfold by itself by simply letting the patient talk.

Therapy aims at conserving psychic energy and diverting it from mental and physical symptoms to healthy conative and cognitive processes. It invokes not only prescribed therapies in general medical practice but the addition of what is usually termed psychotherapy. It begins when the doctor is called. Even though the first visit may be utilized on the history of the symptoms or on a physical examination an emotional reaction is occurring in the patient. Psychotherapy is, to some extent, administered in all physical therapy and the latter intrudes itself into the former.

Inhibiting influences are greatly decreased when a patient is alone with an understanding doctor who listens to the verbally expressed distorted emotional reactions. For the patient this is something more than what is commonly termed "mental catharsis." Spoken and written language are means whereby man can acquire a more conscious recognition of his thoughts and feelings and a clearer evaluation of his mentation. Those patients who do not wish to talk are not to be urged to. But they are to be visited and not neglected.

And the doctor does more than listen. Simply, but definitely, he explains mental mechanisms, word meanings, and emotional reactions. "Mind" has to be clearly defined and the fact explained that mental or physical symptoms are

real but can be produced by a system of ideas as well as by bodily disease. The patient has to be dealt with honestly and his questions not evaded. It is important for the doctor to make sure that his explanation is understood and to grant the patient an opportunity to give his interpretation of the doctor's meaning. Before the end of the treatment the patient becomes more and more aware of his faulty mechanisms. He is not afraid to face his rationalizations, his functioning by the 'all or nothing' law. He understands why the breakdown of his overcompensatory defenses resulted in the depression, anxiety, and other symptoms. He slowly comes to a realization that he is defeating his own purpose and causes his own suffering by not coming to grips with his conflicts.

The doctor's advice is sought in many matters that have emotional value to the patient, and no doctor need feel ashamed as an internist recently did, when personal difficulties of everyday living are broached. They may be about home conditions, finances, work, love object, or planned schedule. The patient is dependent on the doctor for a while. But so is every patient when he needs medical advice and therapy. And it is of as great value to a mildly depressed patient to have the doctor's advice on personal problems as it is to have a prescription filled.

THE case of a married woman, aged 42, illustrates what psychotherapy may embrace and what the family doctor could do. As she was leaving town in two days, she was seen only twice—for an hour and a half in the first appointment and an hour the following day. Her problem was "how much longer she would be able to carry on?" Her physical complaints were severe backache, insomnia, anorexia, and inability to increase her weight and strength.

She has been married twenty years. Until 1933 her husband's work necessitated the family living abroad. They returned when he lost his position and during the next two years, in spite of financial stress, he wished her and their two



adolescent girls to stay with him instead of with his family—away from him. In 1935 he secured a position that takes him abroad for eleven months of the year. He did not suggest her going with him. She maintained her home but, with the husband's approval, applied for a position on the faculty of a large woman's college. She did not get an appointment until September, 1937, at which time she broke up her home. One girl is in college and the other in preparatory school.

The husband's return last July, without notification, hurt her deeply. Since then their relation has been strained and, at times, stormy. He has asked for a divorce. This was the precipitating factor in her depressed and anxious condition.

She was an only child, whose mother died when she was 9 years old. At 14 she was separated from her father, cause not given, and states that she has seen her way through on her own resources. She went to college and gives every indication of superior intelligence. She likes her work but her chief joy is seeing the children often. Besides the fear of losing her husband, her two most pressing reality problems are lack of money and the fact that she has no home for the children during the vacations. Her salary is \$1,200 with maintenance and the husband gives her practically nothing, but he educates the girls. She states that he has beautiful clothes and appointments while she has very little and that they never agree on what the girls need. She therefore spends her salary for the most part on them and is running a car so that she can go to them when free. She has always been a good manager, denied herself, and been the steering wheel of the family. She claims that she and the children are very congenial and that they have meant more to her than her husband has.

She said that she had not been well last year, had consulted a doctor in the college town, and that she did not wish to have a physical examination, either by me or any doctor, because of lack of time. But on superficial observation, one saw that she was very underweight, with marked vasomotor reactions, tense, and restless. She presented the picture of a woman physically and emotionally spent. No one could doubt her anxiety and depression. Not only was a fairly adequate history obtained in two interviews, but they also brought out that she was oversolicitous for her children and that her concept of parenthood was idealistic, impossible for the man she had married, and depleting to herself. By precept and example she had tried to mold him into the pattern she felt a father should be—and he did not fit in the mold. He became resentful, stated that he had a nervous breakdown

last year and, in the effort to restore his self-confidence, sought his freedom.

She never could drink milk and never tried to relax during the day. She neatly avoided any suggestion that her doctor had given to her.

My advice was that she ask the husband to call me for an appointment, that she try to drink milk, rest in the afternoon, take phenobarbital, and consult her doctor as soon as possible after her return to college. I explained my opinion of her case and tried to give her an interpretation of how she had functioned in demanding too much of herself and others.

She asked her husband to come to see me and two days after she left the following letter came:

"In looking back through the years and thinking of your advice to me, I realize that the thing that has governed my life is—fear. Fears which threw me into despair, temper and irrational behavior. I can't remember when I have not been scared and that has made me intolerant, of course.

"This goes on. I did, without tears, tell my husband, after our last conference, that he was free, that I hoped never again to regulate another's life. His answer was, 'let us drop it at that.' We then had a perfectly lovely, amusing evening. He sat on my bed a moment before retiring and I left next morning without an unpleasant word being spoken. This has not smoothed my last few days, however.

"I can't eat, sleep or work enough to keep anyone alive. It drives through my head how inadequate I have been in marriage to have had this thing happen. Today, if I can learn to live tolerantly, honestly and freely, I will give everything I have to reach this point. Energy, study, take advice and try and learn to relax. Please help me in this.

"I have never allowed myself adequate medical advice and perhaps this should be the first step. What type of doctor, if any, would you advise? The doctor I had last year is not here this year.

"Bess has been budgeted and the budget sent to my husband for approval. The next one is my own. Until I live within my income and save, I realize I can't overcome this fear of insecurity. This budget I will send to you, if I may, using you as a rock to cling to until I can stand on my own feet. I have had the car looked over and will stop running one, if the estimated savings look good enough. All of this may sound terribly silly to you but please let me lean for a while.

"Bess is here with me until Tuesday. Last night we chatted and talked, she more maturely than ever before. When she has left for school and the break from the family is more complete, I hope I can get down to work. Classes will start and I will, perhaps, regain some composure.

"Three glasses of milk have been drunk and I didn't get sick!!! Even I can laugh over that vagary.

"You were so very kind, fair and just that I want again to thank you. There are a million things that I want to get off my chest and

throw away and probably I shall inundate you with them. I am ready to say that I can love my husband as he is, my children as they are and that my first lesson is to learn to know and run myself.

Yours sincerely,

On receipt of this letter the following reply was sent:

I suggest that you inquire about a good internist or family doctor, who also has an understanding personality. You can tell him that you have been very worried about personal problems and wish a physical check up. Be sure to mention your inadequate diet and your insomnia and ask if he approves of  $\frac{1}{4}$  grain of phenobarbital (luminal is the trade name) at 7 and 10 at night.

I shall be glad to go over your budget and do not consider the idea silly. At the present time you need to lean on someone who can be objective about your emotional reactions and I am quite willing to be of any service that I can. Behind an abnormal amount of fear is intensity of desire, which may be looked upon as a grim determination for the right. It becomes a rigidity and determination to gratify the urge by demanding the impossible of self and others. Try not to take life so hard and the rearing of children so seriously.

I have an idea that your husband does not want your marriage to break up and there is no help in your being weighed down by mistakes you have made. You are no different from other members of the human species and self accusation and remorse are not firm foundations on which to construct another personality pattern. I am reasonably sure that when as and if you love your husband as he is and not look on him as the symbol of what you hold a husband and father to be, then he will be much closer to you. I think your feeling about your father is responsible for this and regret that we did not have time to ferret it out.

Keep on with the milk and try to relax and nap in the afternoon. Not being a quack I cannot offer a guarantee that you will be well, but I have every reason to think that you will pull out of this on top. And that is not just a pep talk.

Sincerely yours

Two days later this patient wrote me the following:

Having just torn up one letter to you full of whys I again shall try to laugh at myself readjust my viewpoint and say something pleasant or shut up.

Thanks for your letter. I hit low the night before it came but feel better today. Have had my milk made arrangements for more, and have taken for three days large doses of A B & D pills. Slept better last night went to a luncheon today and have worked hard getting my work in order. This late afternoon, is as usual hard to bear. I am lonely for my own. I do question but at least I do not weep. Not since Monday at 4 A.M.

About my father and brother you would

have to question me. There is a great deal of childhood hurt lurking around probably. God grant that it hasn't been the problem or better if it is let's get it out. Certainly the conditions of my growing up would not have been any mother's choice. I hoped I was over the bitterness of certain episodes. Would it help if I tried to write it out? I am not sure that I could.

"Do you feel that I am too introspective? Each time I think, I find myself probing into myself and I realize that I am awfully critical in the analysis. And then the question: How could I, under the circumstances have dealt otherwise with the problem? Many questions and no answers.

I find myself taking my job easier. I think the situation easier but that hasn't brought contentment. However each day I shall try to do a constructive bit of work and perhaps that will ease my mind. I'm over the suicide—over the tears—and cream my face assiduously so perhaps there is hope. You know I really like admiration, dancing gaily, quiet reading, sewing, writing—as much or more than the average, but until you see me again you probably can't believe this. I was completely at an end while in N.Y.

As far as possible I have put my husband out of my mind. For the time being I must reconstruct myself and then we can see. When I do think, I remember the happy times and not the tears and recriminations. Is this the idea?

Sincerely,

Her letters indicate what type of therapy a depressed patient needs from a doctor. Such psychotherapeutic means, employed for this type of case, are often considered too vague and intangible for adoption by the medical profession. But the family doctor has always practiced psychotherapy. And if he is interested in mild depressions by making more use of psychotherapy, he can enlarge his usefulness in treating them.

If he is not interested, he is denying himself an opportunity and, as a psychiatrist, I suggest that he ask himself the reason *WHY*. The Hillcrest Hotel

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## Institute on Nutrition and Diet Sponsored by the Medical Society of the State of New York

Headquarters Syracuse University  
College of Medicine Auditorium

(Sessions start at 9 00 A M )

WEDNESDAY, OCTOBER 18, 1939

### GENERAL CONSIDERATION OF DIET

Dr A F R. Andresen, Clinical Professor of Medicine, Long Island College of Medicine, Brooklyn, N Y

### DIET IN CARDIAC DISEASES AND ARTHRITIS

Dr Russell L Cecil, Professor of Clinical Medicine, Cornell University Medical School, New York City

### DIET IN RELATION TO ALLERGY

Dr Robert A Cooke, Assistant Professor of Clinical Medicine, Cornell University Medical School, New York City

WEDNESDAY, OCTOBER 25, 1939

### DIET IN PREGNANCY AND LACTATION

Dr Edward C Hughes, Professor of Obstetrics, Syracuse University College of Medicine, Syracuse, N Y

### DIET IN INFANCY AND CHILDHOOD

Dr Henry L K. Shaw, Clinical Professor of Pediatrics, Albany Medical College, Albany, N Y

### DIET AND DEFICIENCY DISEASE

Dr Thomas T Mackie, Attending Physician, Roosevelt Hospital, New York City

WEDNESDAY, NOVEMBER 1, 1939

### DIET IN DIABETES MELLITUS

Dr Charles B F Gibbs, Assistant Professor of Medicine, University of Rochester School of Medicine, Rochester, N Y

### DIET IN OBESITY AND UNDER-NUTRITION

Dr William A. Groat, Professor of Clinical Pathology, Syracuse University College of Medicine, Syracuse, N Y

### DIET IN DISEASES OF THE GASTRO INTESTINAL TRACT

Dr A H Aaron, Associate Professor of Medicine, University of Buffalo School of Medicine, Buffalo, N Y

WEDNESDAY, NOVEMBER 8, 1939

### DIET IN RENAL DISEASES

Dr. William S McCann, Professor of Medicine, University of Rochester School of Medicine, Rochester, N Y

### DIET IN RELATION TO SURGERY

Dr Samuel Standard, Assistant Clinical Professor of Surgery, New York University College of Medicine, New York City

### THE ENERGY FACTOR IN NUTRITION

Dr John R. Murlin, Professor of Vital Economics, University of Rochester School of Medicine, Rochester, N Y

Ample opportunity will be provided at all the sessions for submitting questions to be answered by the speakers. Practical demonstrations will be given and outlines of each lecture will be distributed. The course will cover the entire field of medicine. Applications should be made as soon as possible as it will be necessary to limit the numbers. The fee for one full day session is \$3 00, for the whole course of four, \$10 00. Preference for admission will be given to those wishing the full course. Application, together with registration fee, should be sent to Dr THOMAS P FARMER, *Chairman*, Council Committee on Public Health and Education, Medical Society of the State of New York, 206 Sedgwick Drive, Syracuse, New York

# ACUTE CEREBRAL EMERGENCIES

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(Professor of Clinical Neurology The Long Island College of Medicine Brooklyn New York)

**I**N THE general practice of medicine, disturbance of the circulation is the most common cause of pathology in the brain. The factors that cause cerebral anemia and cerebral hyperemia, which are responsible for a part of the clinical picture seen in such a variety of systemic conditions, must be appreciated, but will not be considered at this time. The more dramatic disorder of cerebral function as observed in the apoplexies should receive more consideration than is generally given to this group of clinical syndromes. Under the heading of apoplexy I include primary subarachnoid hemorrhage, cerebral hemorrhage, thrombosis, and embolism.

It is important to determine the type of vascular lesion as well as the etiologic factors that have been responsible for the variety of syndromes that are constantly being admitted to our hospital services, both from the prognostic and treatment point of view. In this paper I will endeavor to point out the results of observations made on an active neurologic service where more than 200 cases of apoplexy are admitted each year.

Since coma is the most common symptom in patients with a cerebrovascular accident, the examination must be carefully made to determine the presence of focal signs. After the examination of the scalp to rule out the possibility of head trauma, the fundi should be studied. The presence of sclerotic retinal vessels are of more importance than the blood pressure in the attempt to estimate the circulatory status of the individual prior to the cerebral accident. The presence of choked disk may immediately suggest the possibility of brain tumor or abscess. The retinal changes may lead to an early diagnosis of diabetic coma. Although

emergency blood chemistries are always ordered, especially to rule out uremia, the increase in blood sugar in an early apoplexy does not necessarily indicate that the patient is a diabetic. It is not an uncommon finding to have the blood sugar as high as 260 in the first twenty four hours and have it return to normal within forty-eight hours. The urine in such cases will show no sugar present. Retinal hemorrhages may suggest the presence of an essential hypertension.

The importance of the inequality of the pupils in subdural hematomas has been overestimated as a localizing sign. In apoplexy the dilated pupil is generally on the side of the lesion. In many instances there is conjugate deviation of the eyes to the side of the lesion, which may continue for two or three days, then the conjugate deviation is to the paralyzed side. The puffing of one cheek during the expiratory phase of respiration is important. Presence of neck rigidity may indicate subarachnoid hemorrhage, and, in order to differentiate this condition from meningitis, a spinal puncture should be done in every case. One should watch for spontaneous movements of the extremities. Stimulation of the extremities by pinching or pricking with a pin, especially the soles of the feet for which drawal of the limb, may prove which side is paralyzed.

If the patient is in deep shock the deep reflexes will be absent, although a positive Babinski may be present. If the coma is not too deep, by lifting the extremities and allowing them to fall to the bed, the paralyzed limb will fall heavily as compared to the limb of the opposite side.

If the patient is perspiring profusely and is restless, the diagnosis of cerebral hemorrhage is warranted. These find-

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Syracuse April 25 1939*

ings are more pronounced in intraventricular hemorrhage than in intracerebral hemorrhage. Vomiting is more often associated with hemorrhage or embolism than with thrombosis. Although the breathing is generally pathologic—either forceful, Cheyne-Stokes, or peculiarly irregular—the abnormal state is more marked in hemorrhage and continues longer. The presence of Cheyne-Stokes breathing does not carry the unfavorable prognosis, however, as is indicated in other pathologic conditions. It is observed in many cases of thrombosis, continuing for twenty-four to forty-eight hours and yet the patient recovers. If the patient remains in coma over forty-eight hours or the Cheyne-Stokes breathing continues and the temperature steadily creeps higher each day, the prognosis is grave. The temperature generally rises from one to three degrees from the second to the fourth day during the greatest absorption from the area of softening.

In a study of 801 cases of apoplexy,<sup>1</sup> 156 occurred between the ages of 20 and 48, and 460 cases between 48 and 68. During the past fifteen years there has been a striking increase in the number of patients in which the vascular accident has been associated with essential hypertension. The majority of these cases fall in the age group between 20 and 48. In many of these cases a history of hypertensive encephalopathy is obtained.

Intense headaches, vertigo, scotoma, anorexia, weakness, irritability, forgetfulness, even convulsive seizures and transitory focal symptoms, such as paralysis, are rather frequent. The presence of small, tortuous, hard arteries with recent and old organized hemorrhages in the retina, associated with a highly elevated edematous disk head, leads one to favor the diagnosis of essential hypertension instead of brain tumor in the younger age group. In the transitory palsies observed in these patients, and in 2 patients in which the hemiplegia completely recovered in two and four days, the question of arterial spasm arises. Although this explanation is the most logical, it is impossible to state whether this spasm was

produced by vasomotor control or by local metabolites acting on the irritable smooth muscle of the blood vessel.

At least 50 per cent of those patients who have essential hypertension and who have had a cerebrovascular accident, have no secondary cardiac or renal disabilities, although their diastolic pressure is high and in some cases well over 100 mm of mercury.

In 647 of the 801 cases studied, the total number of cases with systolic pressure of 140 or less was 105, or 16.2 per cent of the total group, of 140 to 170 there were 205 cases, or 31.6 per cent. These figures indicate that the belief that very high blood pressure is essential for apoplexy is inaccurate.

The fact that a positive blood Wassermann was obtained in only 8.58 per cent of 617 cases of apoplexy is evidence against the belief that syphilis plays a considerable role in the causation of this condition. The average age for those patients having a positive Wassermann was 56 years, although the statement is frequently made that syphilis is the most common etiologic factor for apoplexy in the young and middle-aged groups.

It is difficult to draw conclusions as to the theory that cold weather predisposes to apoplexy, especially cerebral hemorrhage. Such a deduction is based on the theory that cold weather produces a contraction of the peripheral vessels and that consequently there occurs a rise of the blood pressure in the vessels of the internal organs. Joth's<sup>2</sup> figures show very little seasonal difference, while those of Gintrac<sup>3</sup> sustain the impression that the accident is more likely to happen in the cold months. In my series the admissions were fewest in number in July, August, and September, and largest in January. However, in January we have the third lowest death rate, which would favor the less fatal accident of thrombosis rather than hemorrhage.

The sex distribution in this series showed 56.1 per cent males to 43.9 per cent females, which is practically the same as Gintrac's figures of 57 per cent males to 43 per cent females.

Of the patients showing paralysis, 53.2 per cent had a lesion in the left cerebral hemisphere resulting in a right hemiplegia. This compares with the figure of 53 per cent reported by Jones<sup>4</sup> in a study of 1,733 cases, and would indicate that the right and left sides are about equally involved instead of the rather common belief in the greater prevalence of right-sided lesions.

The syndrome of primary subarachnoid hemorrhage is produced by extravasation of blood into the subarachnoid space by the spontaneous rupture of a meningeal vessel. The more common cause for such a rupture is a congenital aneurysm rather than an aneurysm due to arteriosclerosis. Syphilis is rarely the cause of an aneurysm of a meningeal vessel. Aneurysms seldom occur within the brain substance or on the vessels of the surface of the cerebral hemispheres. They are generally found at the bifurcations of the large vessels of the base of the brain,<sup>5</sup> especially in the circle of Willis. Although there are different theories as to the cause of these aneurysms, the widely accepted theory is that the defect in the vascular wall is due to abnormal development in its early embryonic stage. Forbes<sup>6</sup> has suggested that this developmental defect occurs frequently in the media and then, as the blood pressure rises, the aneurysm is formed.

The rupture of cerebral aneurysms may occur at any age, but generally in young or middle-aged adults. It may or may not be accompanied by hypertension or signs of arteriosclerosis. Statements have been made that females are slightly more frequently affected than males, but in my experience it has occurred twice as often in the male as in the female.

The diagnosis of cerebral aneurysm is seldom made prior to the rupture of the aneurysm. In a few instances there are focal signs produced by pressure upon cranial nerves or brain tissue that lead one to be suspicious of an aneurysm, especially if the palsy is transitory and has a tendency to reoccur. One often obtains the history of headaches produced by sudden changes of position, especially

lying down, or by increasing the blood volume in the cerebral circulation from lifting, straining, or coughing. These headaches may have been diagnosed as migraine for many years. Transitory periods of vertigo are often present.

The rather classic syndrome of the rupture is the sudden onset, frequently accompanying some muscular exertion, with severe pain in the head which steadily increases in severity. In certain cases there is a knifelike pain following the distribution of the fifth cranial nerve. Vomiting and a cloudy mental condition, delirium, stupor, or coma may follow in a few hours or days. Coma or convulsions at the onset are quite rare. In one instance mental confusion and delirium continued for eight days in a patient 24 years of age who later made an uneventful recovery. In another case of a young adult, there were seven hemorrhages, including the one prior to admission to the hospital, over a period of three months, without any disturbance of his mental faculties.

Examination of the patient reveals the cloudy mental state, stiffness of the neck, and a positive Kernig sign. If the patient is in coma, the deep reflexes are absent and his extremities are toneless throughout. Focal signs or choked disks are quite rare. The breathing is slow and irregular. The pulse is generally slow and the temperature elevated. There is a leukocytosis in the blood 10-20,000 per cu mm. Lumbar puncture should be done immediately. The presence of fresh blood in the spinal fluid confirms the diagnosis. The danger of lumbar punctures in these cases has been overemphasized. There is no physiologic basis that by removal of spinal fluid the hemorrhage will be increased. The puncture is necessary to relieve the pressure and the headaches, and removal of the blood will relieve the meningeal symptoms. It may be necessary to puncture twice a day for the first two or three days and then once a day for one week, depending upon the severity of symptoms or the return of symptoms.

The method of treatment outlined by H. H. Merritt<sup>7</sup> has been found to be

logical and practical "When the pressure of spinal fluid is over 400 mm  $H_2O$ , repuncture in twelve hours, from 250-400 mm  $H_2O$ , repuncture in twenty-four hours, from 180-250 mm  $H_2O$ , repuncture in twenty-four to forty-eight hours. When the pressure is below 180 mm on two or more subsequent punctures several days apart, further punctures are not needed, provided most of the blood has been removed by that time."

The frank blood will remain for several days, then the spinal fluid will become less bloody and more xanthochromatic for about one week, and in two to three weeks the fluid may become normal. The period of convalescence should be prolonged and the patient should not be allowed to perform any physical activity for several weeks after he is up and about. This is especially true for muscular exertion, such as lifting or straining, which causes sudden changes in the fluid balance of the brain.

I wish to call attention to a clinical picture which, when observed on admission to the hospital with the additional finding of blood in the spinal fluid, leads one to make a diagnosis of subarachnoid hemorrhage. I believe that many errors have been made in the diagnosis of such cases because of the lack of appreciation of the clinical syndrome.

This syndrome generally occurs in the second, third, or fourth decade. The patient has apparently been in good health. The onset is usually sudden, although prodromal symptoms of headache, dizziness, and mental confusion may precede the collapse. The loss of consciousness is generally accompanied by convulsions.

Examination reveals profuse perspiration and labored breathing. If the coma is not deep, the patient is restless. The deep reflexes are hyperactive and there is a bilateral Babinski. The spinal fluid contains blood or appears xanthochromic.

This syndrome should make one suspicious of arsphenamine poisoning. An attempt should be made to determine a history of recent antispecific therapy.

Emergency serologic tests should be made on both blood and spinal fluid, and specimens of urine, hair, and fingernail clippings sent to the laboratory for chemical analysis to determine the presence of arsenic.

The onset of this syndrome usually occurs from eighteen to fifty-four hours after the administration of the drug. Examination of the brain in such cases reveals numerous ringlike hemorrhages in the white matter of both cerebral and cerebellar hemispheres. Oliver and Yamada<sup>8</sup> demonstrated the agglutination of red blood cells that formed emboli in the brain and other special organs. The presence of these emboli is responsible for the numerous ring hemorrhages observed.

As soon as the diagnosis is confirmed, the administration of intravenous glucose and sodium thiosulfate should be carried out. The prognosis is unfavorable for life but if the patient survives, there may be residual signs of cerebral damage and usually there is evidence of progressive cerebral degeneration.

In a study of 1,000 cases of apoplexy<sup>9</sup> admitted to the Neurological Service of the Kings County Hospital, it was found that 1 out of every 11 had auricular fibrillation. Those cases that belong to the rheumatic group are not to be considered in this discussion as they were admitted directly to the medical service because of the severity of the cardiac condition.

The average age of those cases having auricular fibrillation was 57 years. It was observed that in many instances the fibrillation disappeared before digitalization was attempted, and in many instances recurrence of the fibrillation took place during the period of hospitalization. This observation stressed the frequency and the importance of the paroxysmal type of auricular fibrillation, and in nearly every case was associated with hypertension in elderly people.

In 5 cases of hemiplegia, a careful history showed that the acute onset was typical of coronary thrombosis. The diagnosis of coronary thrombosis was confirmed in each case by electrocardio-

grams. Auricular fibrillation was present in each case. The symptoms of the cerebral involvement varied from one to one and one-half hours after the acute onset of the cardiac symptoms. Four of these patients died and a complete autopsy was performed on 3. The cerebral pathology was typical of embolism, involving branches of the middle cerebral artery.

In 64 cases of auricular fibrillation where a definite history of the onset of the cerebral accident could be obtained, 46 occurred in the daytime while the patient was active. Thirty-four of these patients had received treatment for either hypertension or heart disease, and 7 were unaware that anything was wrong with their hearts.

McEachern and Baker<sup>10</sup> in their study of 575 patients at The Johns Hopkins Hospital, in whom the electrocardiogram had at one time or another shown auricular fibrillation, found syphilitic cardiovascular disease in only 3 per cent of the cases. In Campbell's<sup>11</sup> cases of auricular fibrillation only 2 per cent were associated with syphilitic cardiovascular disease. In the 64 cases reported by the author, only 1 patient had a positive Wassermann.

In studying the cases showing auricular fibrillation no conclusions can be drawn as to the relationship between the arterial tension and the cardiac condition. More important is the information as to the time of onset—whether the patient developed this condition during sleep or during activity, especially physical exertion.

If the attack began during physical activity when the arterial tension was increased, then it is far more logical to believe that the fibrillation preceded the attack and that infarction was due to an embolus. This is especially true, since we know that exercise increases the irregularity as the rate increases and the pulse deficit becomes more pronounced. If the attack occurred during sleep, while the normal physiologic drop in arterial tension was present, then conditions favor the obliteration of the cerebral vessel by thrombus formation. In such

cases the presence of fibrillation before the attack is a mere speculation unless the patient has been under the care of a physician and such a condition noted.

Patients having auricular fibrillation generally belong to one of the following groups: the chronic cardiovascular-renal type, generalized arteriosclerosis, or senile heart of the paroxysmal type associated with hypertension.

In the cases of cerebral infarction from embolism, it is difficult to determine the origin of the embolus when auricular fibrillation is present. It is my belief that particles of fibrin may be thrown out from the spaces between the musculi pectinati of the auricles or from the cavities between the trabeculae carneae during the irregular contractions of the ventricle seen in auricular fibrillation. Weber<sup>12</sup> and many other pathologists have noted the presence of antimortem thrombus in both auricles and ventricles at the autopsy examination where auricular fibrillation had previously existed.

The less frequent causes for cerebral embolism are bacterial endocarditis, infected thrombophlebitis, pulmonary pathology, or an operative wound. The onset of the clinical picture is generally sudden, and the severe general symptoms are quite similar to those seen in cerebral hemorrhage.

The immediate care of these patients should be placed in the hands of the internist, as the problem of greatest importance is the treatment of the crippled heart. The repair of the cerebral infarction, as well as the favorable prognosis, depends upon the improvement in the general circulation, which is governed by the cardiac status.

Differential diagnosis of the various types of cerebrovascular lesions depends to a large extent upon a careful history. The diagnosis of hemorrhage is most often made and least warranted although the differential diagnosis between hemorrhage and thrombosis is difficult in the early stages of the clinical course.

Cerebral thrombosis generally occurs during sleep or when the patient is inactive, at a time when there is a physio-



logic drop in the blood pressure Hemorrhage more often occurs during physical exertion or mental stress When thrombosis occurs while the patient is awake, the onset is more often gradual and in many instances there is no loss of consciousness An onset with severe headache, vomiting, or convulsions indicates hemorrhage Profuse perspiration, restlessness, Cheyne-Stokes or labored breathing, slowing of the pulse, leukocytosis over 12,000, increase of spinal fluid pressure over 350, and presence of blood in the spinal fluid—all favor the diagnosis of hemorrhage

Vascular lesions of the brain are practically never the cause of sudden death Sudden death is generally cardiac in origin A cerebral hemorrhage of any appreciable size is nearly always fatal and death may occur within a few hours About 90 per cent occur within two weeks Patients with hemorrhage show progression of symptoms, while those with thrombosis show improvement A larger percentage of patients have hemorrhage in the younger age groups than thrombosis There is no direct relationship between hypertension and hemorrhage, as thrombosis often occurs in severe hypertension with diseased blood vessel walls A patient with thrombosis seldom dies within twenty-four hours and may live for many days or weeks before death occurs from bronchopneumonia or cardiac failure Death in patients with hemorrhage is usually the direct result of the hemorrhage, as the hemorrhage directs its course into the ventricular system rather than outward to the surface of the cortex In certain cases hemorrhage is superimposed upon thrombosis, usually in the second week, and takes place at the periphery of the necrotic zone Patients may have several occlusions with incomplete softenings, which may produce no focal signs and very little systemic disturbance.

In the treatment of the apoplexies I wish to emphasize the importance of good nursing care The nurse can do more for the patient than the physician, although it is difficult to convince the relatives of

this fact because they invariably insist that some drastic measures must be attempted Do not overtreat the patient. Since supportive treatment and symptomatic remedies are all that can be used, these patients should be cared for by the internist rather than by the neurologist

Do not interfere with the intracerebral fluid balance by using intravenous hypertonic glucose or other dehydrating agents, as nature will accomplish far better results if not interfered with Lumbar puncture is for diagnosis, not treatment, in cases other than subarachnoid hemorrhage Venesection should be done only when signs of congestive heart failure appear The patient should be kept quiet but the position in bed changed frequently to prevent the development of bed sores and pulmonary congestion

Fluids should be given by clysis rather than intravenously, and as soon as the patient can retain a Harris drip, this should be used, as it often relieves abdominal distress Empty the bladder by the Credé method in preference to catheterization, in order to prevent cystitis Fluids and liquid diet should be maintained for several days Nothing can be gained by operative interference.

Do not keep patients who have had cerebral thrombosis in bed too long during the period of convalescence One must attempt to convince these patients that although they are disabled, they are no longer sick Psychotherapy is important and should be used on both the patient and the relatives Worry, anxiety, and mental depression will react upon the vegetative nervous system, and the already crippled circulatory system has trouble enough without any extra burden

Finally, the patient should be encouraged to have frequent physical examinations in an attempt to avoid a similar attack

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## POSTGRADUATE LECTURES IN OPHTHALMOLOGY

At the Manhattan Eye, Ear and Throat Hospital the Department of Ophthalmology—for graduate instruction to the resident staff—is giving this schedule of evening lectures

Date	Subject	Lecturer
Mon. Oct. 2	1 Developmental Anomalies of the Eye	Dr P Montalván
Thur., Oct. 5	2. Diseases of the Lacrimal Apparatus Medical and Surgical Treatment	Dr M. A. Last
Mon. Oct. 9	3 Dental Infection in Ophthalmology	Dr C. Dunn
Thur., Oct. 19	4 Ulcers of the Cornea	Dr Jos. Laval
Mon., Oct. 23	5 Allergy and Immunity in Ophthalmology	Dr A. A. Eggston
Thur., Oct. 26	6 Corneal Opacities Medical Surgical and Cosmetic Treatment—Corneal Transplant	Dr R. T. Paton
Mon. Oct. 30	7 Diagnostic and Therapeutic Use of Tuberculin in Ophthalmology	Dr A. A. Eggston
Thur. Nov. 2	8 Exophthalmos and Orbital Tumors	Dr M. A. Last
Mon. Nov. 6	9 Anomalies of Accommodation	Dr P. Montalván
Thur., Nov. 9	10 Iridocyclitis	Dr Jos. Laval
Mon. Nov. 13	11 Sinus Disease in Ophthalmology	Dr R. E. Buckley
Thur., Nov. 16	12. Ocular Tuberculosis	Dr R. T. Paton
Mon. Nov. 27	13 The Use of the Cross-Cylinder in Refraction	Dr H. B. Field

Lectures begin at 7 P.M. Hospital residents and graduate students are invited to attend.

Inasmuch as there are occasionally unavoidable changes in the schedule, last minute information may be secured by telephoning the hospital RHinelander 4-7880

## CONFERENCE—ACADEMY OF MEDICINE

A two-day conference on Convalescent Care under the auspices of the Committee on Public Health Relations of the New York Academy of Medicine in cooperation with the Josiah Macy Jr. Foundation will be held at the Academy on November 9 and 10 of this year. Admission to the conference sessions will be by invitation.

A general evening meeting on Friday November 10, at 8 30 o'clock at the Academy (2 East

103rd Street) at which the discussions of the conference will be summarized, will conclude the conference. All those interested in the problem are invited.

The purpose of this conference is to redefine the problem of convalescence in the light of recent progress in medical science and to explore the need for further research into socio-economic and medical aspects of convalescent care.

## N Y SOCIETY—CLINICAL OPHTHALMOLOGY

The following have been elected officers of the New York Society for Clinical Ophthalmology for the coming year: president Arthur M. Yudin, vice-president Morris Davidson, recording secretary Sidney Fox, corresponding secretary Benjamin Esterman (515 Park

Avenue, New York City) treasurer Adolph Posner

Meetings will be held the first Monday evening of each month—from October through May—at the Squibb Hall 745 Fifth Avenue, New York City

# DEFORMITIES OF THE EAR AND NOSE TREATED BY PLASTIC SURGERY

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**F**OR the subject matter of this paper I have selected cases that present four common types of deformity. These are protuberant or "flopp ears," lateral nasal deformity, "saddlenose," and an example of an oversized "hump nose." In addition, another case is included, because it is of considerable interest from a surgical standpoint. This is a patient who suffered an almost complete loss of the auricle from an accident, for whom I made a new external ear.

Fig 1A shows a total loss of the auricle with the exception of part of the lobule and the tragus, the result of an automobile accident two weeks before. This case was referred to me by Dr Benjamin W Seaman, of Hempstead, Long Island.

The method of reconstruction that I employed was devised by Pierce, of San Francisco. This procedure gives a new auricle that does not shrink when completed, a common fault in other types of operation. There is also the advantage, with this technic, of producing an ear that stands out from the skull at the proper angle.

A series of operations was performed, the first on May 16, 1937, and the last on April 20, 1938. General anesthesia was employed for the first operation, all others were carried out under novocain infiltration.

*First Operation, May 16, 1937*—Four pieces of rib cartilage were removed from the right costochondral junction at the level of the seventh, eighth, and ninth ribs. Three of these were implanted above and behind the external auditory canal between the skin of the scalp and the temperomandibular fascia. The fourth piece of cartilage was buried under the skin of the chest for future use, if needed. At this operation a tube pedicle flap was made in the neck, just above

the clavicle, as shown in Fig 1B.

Several weeks later this pedicle flap was lengthened posteriorly until it was 16 cm in length.

The third operation, postponed by my summer vacation, took place on September 13, 1937. The anterior end of the pedicle was severed and implanted in the neck just below the site of the new auricle.

*Fourth Operation, November 8, 1937*—A semilunar incision was made in the skin of the scalp, as shown in Fig 1C, through the temperomandibular fascia in the size and shape of the auricle desired. Thiersch grafts, taken from the thigh, were then placed about a stent of red dental molding compound, so as to cover both sides. The stent with its epithelial covering was then buried and the skin sutured.

Ten days later the stitches and stent were removed and the new auricle appeared as shown in Fig 1D. Thus the posterior aspect of the new pinna and the raw area on the skull were both covered with the epithelial graft.

After several weeks I found that the lower part of the new auricle, due to the poor nutrition in the Thiersch grafts at that point, became adherent to the scalp. Here, in consequence, it was necessary for me to depart from Pierce's technic by using one end of the tube pedicle flap, which I split, to cover the raw area on the posterior aspect of the new auricle and the raw spot on the scalp directly opposite. Later on I found this was an advantage, because it helped to support the new ear and prevented drooping.

Following this operation, at other sessions, I readjusted the ends of the tube pedicle flap so it could finally be employed to form a helix for the new auricle.

*The final operation* was performed on April 20, 1938. At this time the following steps were carried out:



A. Loss of entire auricle except lobule and tragus.



B Tube pedicle.



C. Cartilage implanted  
Stent and epithelial inlay im-  
planted



D Stent removed. Pedicle  
transplanted



E New auricle. Side view



F New auricle. Posterior view

FIG 1

- 1 One end of the tube flap was severed.
- 2 A narrow strip of skin on the posterior circumference of the newly constructed auricle was excised.
- 3 The tube flap was split and attached to the skin edges prepared for it on the circumference of the auricle.

Protuberant or "flop" ears are a constant source of annoyance to the patient, particularly if he happens to be a boy of six years just starting school. A child with this deformity is subjected to considerable ridicule from his small classmates, and it is not surprising that the parents desire the deformity corrected before school age.

I have found that the sixth or seventh year is a good time to operate. The

youngest of my cases was three years old, the oldest was an adult in his forties.

Figs 2 and 3 show 2 cases before and after operation.

### Operative Technic

An elliptic skin incision is made on the posterior aspect of the auricle and on the skin of the scalp in the postauricle region. The skin embraced in this incision is cut away from the underlying structures and discarded. It is important, in every case, to remove sufficient cartilage from the auricle to take away the 'spring' so that the auricle will lie back in a natural position near the scalp. Just how much cartilage should be removed is a matter which experience alone will show. I should say, on the whole, that the tendency is to remove too little cartilage rather than too much. After all bleeding



Before operation



After operation



Before operation



After operation

FIG 2 Protuberant ears

points have been carefully ligated, the skin edges are approximated with interrupted silk sutures. The contour of the auricles is filled with small pledgets of cotton saturated with 95 per cent alcohol, and a tight pressure bandage is applied

Probably the most frequent deformities after improperly treated fractures from motorcar accidents, boxing, etc., are the so-called lateral deformity (Fig 4) and the saddlenose deformity (Fig 5) (See page 1960)



Before operation



After operation



Before operation.



After operation

FIG. 3. Protuberant ears



charge we remove the uterus as a preventive prophylactic measure rather than do a curettage and implant radium

Kennedy, with his vast experience with this operation, claims and I believe it is so, that 98 per cent of the operable cases of malignancy can be performed with the clamp method

We realize that this operation can be performed for malignancy of the cervix, middle and fundal zones of the uterus, the abused cervix, fibroids (with morcellation if necessary), functional bleeding, and all types and degrees of prolapse of the uterus. Therefore, we must admit that Kennedy's statements that this operation has the greatest usefulness of any operation in surgery and that the profession has been grasping at straws when a lifesaver is at hand are very nearly correct.

The profession is becoming more concerned about leaving a cervical stump after doing a subtotal hysterectomy, as this is a menace for the rest of the woman's life as a possible focus for future malignancy. The technical difficulty of doing a suprapubic panhysterectomy is greater and the mortality rate higher. Therefore, the natural tendency at present is to study methods of vaginal hysterectomy with their attendant advantages and disadvantages

I am convinced that this procedure is one of the solutions of the question of malignancy in the hands of a well trained surgeon if he follows meticulously Dr Kennedy's instructions

Upon reviewing my experiences I would suggest to the beginner to keep in mind that this procedure is definitely contraindicated in cases of acute pelvic inflammation and in those cases in which the uterus is not freely movable. It would be wise to pick out a few cases that are more or less easy to start with and then tackle the harder ones as they come along later

Preparation of the vagina is most important. The ordinary cleansing with a sponge on a sponge forceps is not enough. The vaginal canal must be thoroughly scrubbed with a scrub brush and the



FIG. 1

vaginal canal put on stretch by traction on the nozzle of the irrigating syringe. The cervical canal is then thoroughly cauterized.

The bladder is catheterized and the lower border outlined. It is surprising how far down the bladder extends on the anterior surface of the cervix, and while it would seem unnecessary to outline the lower border of the bladder after catheterization, it is a good precautionary measure.

The cervix is then grasped by a strong vulsellum forceps, and strong traction made upon the vulsellum, pulling the cervix up and to the right. A deep cut is made on the left side with the scissors in semilunar circle posteriorly to the cervix about  $\frac{3}{4}$  inches from the external os (Fig 1)

It is necessary to make a bold deep incision, even if one does possibly enter the cul de-sac, and then pull forcibly on the forceps and keep thus up until the side is released

After the posterior semilunar incision is boldly made and the tissues are pushed





FIG 2 Case S P Low power (cellular portion)—Region of capsule A, cylindromatous portion, B, cells merging into stroma, C, myxomatous tissue, D, note the microscopic thinness of the capsule. We were afraid that the tumor had invaded tissue beyond this capsule, but there has been no recurrence in seven years

areas of tissue that are highly cellular. Their cells are polygonal, possess abundant cytoplasm and long, frequently anastomosing, cytoplasmic processes. They often appear as a syncytium. Their nuclei are large and vesicular, and are not differentiable from the cells in the alveolar-like structures. No mitotic or atypical nuclei are seen.

3 *The Loose Areas*—Groups of cells arranged into alveoli and anastomosing cords are separated by areas containing loose, acellular, irregular, slightly basophilic, mucoid substance. Isolated trabeculae of loose connective tissue are present. Cartilaginous or osseous elements are not present. No mitoses are present.

4 *The Capsule*—The tissue received shows a portion of the capsule covered externally by typical mucous glands. The capsule itself consists of dense fibrous tissue. There is no invasion of the capsule by tumor tissue.

**Diagnosis** Mixed tumor of the soft palate with areas showing predominantly an adenomatous character (not a malignant tumor).

*Case 2*—Mrs S H, aged 43 years, consulted me on February 2, 1933, on the advice of her dentist, who observed a mass in the palate one week previously. The family history is irrelevant. Past history not remarkable except for a cervical gland enlargement every winter, associated with a sore throat. She has had chronic tonsillitis. Aside from this, she was totally unaware of any mass in her mouth, and has been in perfect health. One year ago another dentist, who saw her once, did not observe any extraordinary

pathology in her mouth. The tumor lies in the soft palate, occupying the right half, is the size of a small apple, and is fairly round, not hard, nodular, circumscribed, and freely movable. A diagnosis of mixed tumor was made, and the mass removed by enucleation, under local anesthesia. The tumor was extremely friable, and its capsule very thin.

#### Pathologist's Report

Gross specimen consists of four pieces of tissue. (1) The main mass measures 2 cm in diameter and is irregular and spherical. It is very well circumscribed and at operation it was noted that it could be shelled out very easily from the adjacent soft palatal tissue. The surface is



FIG 3 Case S P Low power (cellular portion) A, lumen of glandular structure, B, region of epithelium merging into stroma

yellowish and white, and presents markings suggestive of lobulation. On section these superficial markings do not extend deeply into the mass. The latter is moderately friable, and has the consistency of fat tissue. The central portion, which is otherwise solid, shows several lumina. These are continuous with a portion of the surface that was lacerated in removal of specimen. No tissue comes off on scraping the cut surface with the knife. (2) and (3) these are pieces of tissue apparently removed from the lacerated area just mentioned, and show a smooth, well-circumscribed surface. (4) this consists of a red, edematous, striated muscle tissue and fibrous tissue, apparently part of the soft palate structure.

**Microscopic** The tumor tissue presents a non-homogeneous, irregularly arranged number of tissue elements.

1 *Cylindromatous Elements*—These consist of narrow, wide, and cystic lumina lined by either flattened cells with scant cytoplasm, or low cuboidal cells. In the main, the latter are not present as a single layer of lining epithelium, but

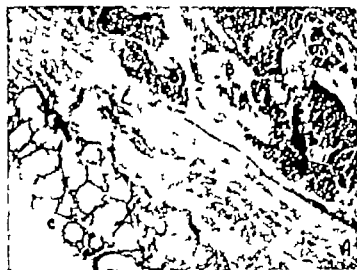


FIG 4. Case S H. Region of capsule (low power) A capsule, B tumor tissue (stroma) B, tumor tissue (epithelial structures) C adjacent mucous glands of palate.



FIG 5. Case S H. High power. Periphery of cylindromatous area A, gland lumen, B, compact solid epithelial cords separated by looser myxomatous stroma (C)

form a part of a homogeneous cellular layer surrounding the lumina and continuous with the stroma. A basal membrane as such is not present. The nuclei of the lining cells and the cellular zone just described are rather uniform in size, shape, and staining intensity. They frequently show nucleoli and always possess a sharp nuclear membrane. They resemble 'basal cells' and epithelial cells. Nuclear atypism, mitoses, or multinucleated cells are not observed. The lumina of the cylindromatous elements occasionally contain a homogeneous hyalin eosinophilic, and fuchsinophilic material.

2 *Myxomatous Elements*—These consist of pale stellate and branching cells of the loose alveolar tissue type with varying amounts of anastomosing cytoplasm. A pale intercellular (mucoid) substance is present between the loosely arranged cells. These myxomatous elements form broad zones at some sites, but may be found as small foci elsewhere.

3 *Dense Hyalin Cartilaginous Elements*—These consist of dense, homogeneous pink staining areas in the H & E stains and bluish in the Van Gieson sections. Small lacunae with small nuclei embedded within them are seen. The periphery of these sites has the appearance of a fibrocartilaginous matrix which fuses with the septal digitations of the fibroblastic tissue present throughout the section.

4 *Fibroblastic Tissue*—This consists of fibrous tissue forming thin septa with broad septa at their cross sections.

5 *Bone tissue is not encountered*

6 *Dilated Blood Vessels Showing Hyperemia*

7 *The Ensheathing Capsule*.—This consists of dense, relatively acellular fibrous tissue with dense long strands of layered collagenous tissue. Nowhere do the immediately adjacent elements

of the tumor invade the capsule. Accompanying the main tumor mass is a piece of palatal tissue containing striated muscle, mucous glands, interstitial stroma and fat tissue. No tumor tissue invasion of these structures is seen.

Diagnosis (1) Mixed tumor of the soft palate (well circumscribed and ensheathed by a dense, fibrous capsule), (2) invasion of the capsule or adjacent palatal tissue is not found.

Both cases have been seen regularly and no evidence of recurrence noted (September, 1939).

In spite of the relatively large size of the tumors, there were few symptoms: no nasal obstruction, no sensation of a lump or fullness in the throat noted. This speaks for the long duration and slow growth of the tumor.

Diagnosis is relatively easy. Inspection and palpation are usually sufficient for diagnosis. However, the age, onset, and lack of symptoms is suggestive. In the presence of lymph nodes, carcinoma and epithelioma must be considered. The differential diagnosis between cysts and fibromas rests entirely with microscopy.

### Morphology

From the pathologic study it is evident that the multiplicity of its component parts, and their lack of an organized morphologic relationship makes it impossible to name it otherwise than what it obviously is, i.e., a mixed tumor.

As a rule, mixed tumors wherever located are hard, firm, rather freely movable masses that grow very slowly. Concern as to their malignancy arises mainly from their histologic irregularity. It is the consensus of opinion that they are to be considered malignant only where they have broken through their enveloping capsule and infiltrate the surrounding tissues, and this usually only after some trauma, especially surgical. One should consider them of relatively low malignancy. They are tumors in, but not necessarily of, the tissues in which they are situated.

In the soft palate, however, they are usually limited to that structure, and are very rarely malignant. The pathologist may pronounce all of the tumors as malignant, but the clinician none. Eggers described 2 cases with histories of invasive or recurrent growth, and suggests that here not sufficient time had elapsed between operation and recurrence to prove anything. I have waited seven years to report these cases. There may have been only a continuity of the original growth after incomplete removal. Radium is hardly indicated since the tumors are encapsulated. Surgery is the treatment of choice.

There is no predilection for sexes, and the tumors occurred in the cases reported in the third and fourth decades.

### Conclusion

Two cases of mixed tumor of the soft palate are reported, with microscopic malignancy and clinical benignity.

*Follow-Up Notation*—There are no signs of recurrence, metastasis, or glandular involvement at this date, September,

1939, in either of the patients. They are both free of any symptomatology referable to the soft palate.

*Note*—When I stated that radium is hardly indicated in these encapsulated tumors, I did so with the full knowledge that the mixed tumor, though not malignant, is subject to local recurrence. Therefore, destructive agents, such as radium, cause unnecessary necrosis of tissue, especially in the oral cavity.

Recurrent masses can be excised as they occur. Again a criticism which may not be without foundation is the method of excision. You will see how closely the dissection followed the capsule of the tumor at various places. One should not trust his ability to outline the exact limitations of a tumor mass by surgery but rather, as has been repeatedly taught, to make a wider excision.

The problem here, however, cannot be compared to a breast tumor, for example, for two reasons at least: (1) from personal experience and from a résumé of a limited literature, malignant recurrence and metastasis is a rarity, and (2) in view of the above, destruction or mutilation of normal tissue in the oral cavity would be no less than criminal.

The pathologist makes a careful note of the presence or absence of invasion of the tumor capsule by the tumor elements. This is most important and is the keynote upon which any discussion of mixed tumor must be based.

We should not overemphasize the possibility of malignancy and subsequent recurrence or metastasis of a mixed tumor when the tumor is intact and not invaded microscopically by cellular elements found in the body of the tumor.

### SULFAPYRIDINE AND INFANTILE PARALYSIS

The possibilities of sulfapyridine being effective in the treatment of anterior poliomyelitis (infantile paralysis) are indicated in a report by Dr. John C. Wagner, of Ponca City, Okla., in *The Journal of the American Medical Association* for May 13, of a case in which the drug, administered after the onset of the disease, appeared to have arrested its further progress.

### HEALTH INSURANCE A BIT SICKLY ITSELF

"Health insurance in Australia is dead," reports the Australian correspondent of the *Journal of the A M A*. In neighboring New Zealand the government is trying to put a scheme of health insurance into effect, but it is opposed by the medical profession, and only twenty-two doctors have accepted contracts to provide service. The future of the plan seems dubious.

## Special Article

### SUWANNEE RIVER BLUES

FLOYD BURROWS, M.D., Syracuse, New York

**L**ikes constipated bowels reforms move slowly and with difficulty. I do not expect to start a reformation by anything novel I say in this article. But marshalling and reviewing salient facts is sometimes a maneuver that fosters action. It may serve to agitate an indolent mind here and there as a blue pill occasionally does a sluggish liver.

I never could understand why one should doctor for nothing if one can get paid for doing it. Therefore I am a firm believer in collecting payment for what one does. Psychologically it is the best procedure for all concerned. After one has the cash in his wallet if one wants to give 10 per cent to the Lord far be it from me to hinder by word or deed one a mazzuma slinger from manipulating for a lusty fling. Personally however I would rather lay up fewer treasures in heaven and acquire more of them on earth. I never have had a ravenous desire to live on skim milk while laboriously traversing this vale of tears and rascality so I could have lavish amounts of butter beyond the clouds. Scattering bread upon the waters may be a noble pastime, but the expanse of  $H_2O$  has always seemed too immense, too full of dampness and moisture, to expect my loaf to come sailing back on a gilded yacht—all sliced, toasted and covered with jelly made from ocean currents. Probably I am a sour, gloomy misanthrope in the sad thralls of dotage and in need of several transfusions of pious blood to strengthen my charitable system.

I never can solve the puzzle, either why a physician doing dispensary or ward hospital work, or caring for the indigent in their homes or in his office can't put just as much humanitarian interest and skill into his ministrations if he is paid a nominal sum as he can if he works unpaid.

Can't the coal merchant provide as good coal if he is reimbursed by the welfare organization as he can if he donates it free?

Can't the clothier provide as ample as warm and as desirable a coat for cash as he can if he gives it away?

Can't the butcher sell as tender and as nourishing a hunk of roast beef for coin-of-the-realm as he could if he put it in the roaster for nothing?

If experience and prestige are the goals sought by free doctoring, why can't they be attained equally well if one is paid for service by a governmental agency? Is there no prestige or experience to be gained in successful practice among patients who pay?

Of course the answer undoubtedly will be to crack the old chestnut that once such a system is instituted socialized medicine will arrive apace. Perhaps—but I think such a deduction is erroneous. Socialism has not arrived yet because payment is made for the indigent's rent

coal, groceries, and clothing. I fear medicos swallow an elephant and choke on a gnat!

Style, habit and custom are great tyrants! They govern our daily actions like dictatorial satraps. And so medicine, like a Prometheus remains chained to the rock of free service because it has become the style, the habit, and a customary procedure.

Sometimes I seriously wonder whether doctoring is a benevolent occupation, a philanthropic pursuit, or whether it is actually a worthy profession at which a practitioner works for a livelihood and economic position.

Our brotherhood unquestionably has been imbued with too much humanitarianism for its own thrifty welfare. Trying to live up to a silly exalted reputation for charitableness has resulted in establishing the complex problem of doing and being expected to do an immense amount of eleemosynary work without remuneration. From time immemorial physicians have been accustomed to donate their services lavishly, often rushing forward in an enthusiastically zealous manner lest they be deemed inhumane. Now the public has become educated to expect such gratuitous benefits in too voluminous a fashion.

I am not advocating a radical course of action or a harsh system of ethics that will impose increased hardship upon the shoulders of the indigent ill who actually cannot pay a doctor's compensation. Nor is it my attitude to stand by in a meekly submissive attitude and see additional hardships loaded by the public upon my own shoulders and those of my brothers in misery, by allowing the public to profit through the mistake our predecessors negligently made when they originated the devastating habit of working for nothing and boarding oneself—a slipshod habit which has been followed blindly through shiftless apathy.

The exaggerated or heavyweight type of humanitarianism dates back about one hundred years to 1847 when the American Medical Association was organized.

Article 2 of its Constitution adopted at that time reads, 'The objects of the association are to promote the science and art of medicine and the betterment of public health.'

Section 1 Chapter 1 of the *Principles of Medical Ethics* states: 'The profession has for its prime object the service it can render to humanity; reward or financial gain should be a subordinate consideration.'

Now this magnificent altruism was very glowing and lofty and no doubt warmed the heart cockles of all the medicos a century ago even though, today, it gives many of them cold feet.

When you contemplate this beautiful gesture of generous service to mankind, reflect that then a peck of spuds would not set one back as much as

it takes to kill a potato bug today, that you could buy a horse for the cost of his manure to fertilize a small garden at the present time, that the overhead for doctoring a family of a dozen would not have been as much as it stands one out now to squirt a few shots of estrone under the hide of a nervous wench in the throes of the climacteric, and that a moderate sized hospital could have been run for the expense of a sterilization department in one of our modern palaces of brick and stone where operative cases are draped with about five layers of sterile sheets—four of which are superfluous

If the prime reason for the existence of the medical profession is the service it can render humanity, then the secondary reason is to collect enough revenue from such service to permit its "docs" to carry on. The two factors are as intimately synchronized as the left auricle and ventricle

Although in its constitution the A.M.A. did not specifically state that a member needed at least a pair of pants in which to ensconce his person when he ventured forth to visit the sick, it can be assumed the association expected him—on account of the large percentage of females who are indisposed—to wear such gear once in a while. If a man in this year of grace is going to have trousers and sartorial trappings commensurate with what is decently required of him, and other paraphernalia which the public demands him to possess, he has to cock his eye occasionally at a dollar, mercenary as it may seem, even though his sympathetic soul cries out in misery because he can't work for nothing

It must be conceded that doctors have forged and fastened the fetters of free work upon their earning capacity, have riveted the shackles of dispensary and hospital ward service upon their business activities, have tied the millstone of charitable labor around their own financial necks. They have nobody to blame for the mess they are in but themselves, and nobody but themselves will ever succeed in establishing extricating maneuvers. Getting them interested, however, in new business ideas that might be beneficial to adopt has about the same rosy outlook that selling baby carriages to eunuchs presents

Just recently, two lawyers were paid \$750 by the County of Onondaga for trying to save the life of a vicious murderer. A few months previously, two other hungry mouthpieces in Syracuse received approximately \$25,000 for appearing during a six months interval in certain proceedings to prevent tax assessment reductions. Let the medical taxpayer of my home city laugh that off when he recalls that during 1938 he cared for indigents without pay!

No holler became vocal from the citizenry because lawyers had ginger enough to demand and obtain a lusty sum for their services

Did a doctor ever get \$750 from a government setup for taking care of a poor person condemned to death by cancer?

Doctors won't get pay for charity work until they arouse themselves sufficiently to exercise the business acumen of the legal fraternity and demand pay

It is easier, though less lucrative, for them to drowse on the enervating upholstery of the "Can't Club" than it is to battle for their rights

Lawyers evidently prefer to collect their fees and enjoy their heaven here on earth, while doctors, going on the assumption that their occupation has a special flavor of holiness, seem to seek a more remote heaven by acquiring a pair of wings with which to volplane like glorified saints into such a paradise

I think the lawyers have it over them, just as holding a "warm baby" in one's lap has it over talking to some doll on the long distance phone, if hazy, but nevertheless enchanting, recollections of early life are not misleading

Will anyone who has in his heart such an abounding love for his fellow men that he can go on day after day wearing out his clothing, using up his automobile, and consuming his vital strength to give them service without remuneration, tell me just what he is going to do when he cannot make enough from his practice to pay his overhead expense and feed, clothe, and support himself and family?

That grave question today lurks just around the corner from many a jolly rotund pill slinger—and some spare and tall ones too—who, with smiling face and sickroom charm, have graciously, benevolently—but carelessly—doled out gratuitous service as their medical life has flowed onward through the rugged domain of physic. Many such men now are suffering the initial pangs of a financial coronary thrombosis—as well as a physical one—while they try in a discouraged fashion to answer these questions

Pause for a moment and reflect upon a doctor's economic problem. He spends ten years of his life at an expense of as many thousand dollars to fit himself to practice. As soon as his gilded shingle is exposed to the view of a critical and exacting world, other heavy expense begins—expense to establish himself on an earning basis to make both ends meet, expense for rent, secretarial hire, telephones, drugs, and the thousand-and-one items that eat up his income like an elephant eats hay. According to vital statistics, thirty years is the approximate span of time vouchsafed to the average practitioner in which to recoup himself for his initial outlay and to provide a competency for his old age. It makes most of them hump some to do it, if the surrogates records don't lie

If the members of my profession had the guts and were fired with the same eager enthusiasm to liberate themselves from the intolerable business shackles that bind them so inexorably to habit and to the precedents of a lackadaisical past, and if they were stirred as a whole with intensive zeal akin to patriotic fervor in declaring freedom from present customs—as were the men who framed and signed the Declaration of Independence against England's tyranny—they could free themselves from their thralldom as successfully and triumphantly as our determined forefathers of '76 established a new order of things

Why doesn't the medical profession put itself—as it does its patients—through a laboratory of rigid investigation and diagnose what is wrong with its internal mechanism before the public performs a postmortem? Why doesn't it come out into the open and tell the people what it wants? Why doesn't it thumb its nose at the new deal and formulate a definite platform of reasonable essentials, and if needs be, go down

fighting with colors flying for what it knows is right instead of jittering tremulously along with no more apparent spunk than a rabbit?

Why doesn't it say in no uncertain terms that it wants a reasonable recompense for taking care of the indigent in hospitals dispensaries, homes and offices, that it wants more hospitalization accommodations for the poor and more free laboratories and free x ray facilities that it wants more accurate determination of who the indigent are and why, that it wants the public to budget or to insure for sickness and accidents, that it wants everybody to realize that it is not going to keep on caring for the sick free of charge who can ride up to doctors' offices in automobiles wearing fur coats and more costly raiment than M D s can afford for themselves or for their family and that it wants men and women to get the idea that if they can purchase electric refrigerators, radios, oriental rugs, mahogany furniture and other lavish luxuries too numerous to inventory if they can take vacations and gallivant around the country on expensive pleasure trips while physicians are forced to stay at home because such patients bills are unpaid, if they can throw lavish parties, patronize unholly cafes, night clubs, and dancing orgies—they certainly can manage to come across with cash on the wood when they are sick.

Who guzzles all the beer wines, and liquors that keep the saloons and other drinking joints running? Who attends the prize fights, the wrestling matches the dance halls the ball games the skating carnivals? Who patronizes the movies and keeps them jammed to the doors with gaping addicts? Who smokes the hundred

and sixty billion cigarets and consumes the immense amount of other tobacco each year? Who keeps the candy stores open with people crowding them like hungry flies? Who plays all the slot machines and maintains other forms of gambling in a rampant fashion? Who keeps the brothels red lights burning to make venereal disease for medical men to care for gratis?

Answer these questions and many other pertinent ones that could be asked, and you'll have the solution to the question of why the practice of medicine is on the skids. Perhaps it is true that fees have been too high—especially surgical and specialism fees—that hospitalization has cost too much and that x ray and laboratory charges have mounted to lofty heights. But it must be remembered by our critics that people have grown demanding. They insist when ill, on special nurses galore and accommodations de luxe. They insist on the elaborate and the extravagant until they are milked so dry a farrow cow's udders would seem a creamery in comparison to what they can squeeze out for their physician when his bill is rendered.

Money money for everything but no dollars for the doctors!

Yet like a bunch of merry coons sitting beside a Suwannee river—happily crooning plantation melodies while sunshine plays across the water—as care free summer days go by so doctors lolter in listless fashion on the banks of the medical Mississippi humming their feeble songs of sixpence while basking in the afterglow of prosperity—as the autumn days of socialized medicine draw nigh

## PHONE BOOKS TELL TYPES OF DOCTORS

"The users of Florida telephone directories published by the Southern Bell Telegraph and Telephone Company may now know whether a person listed therein as a doctor is a doctor of medicine, an osteopath, chiropractor or naturopath, or a practitioner of any other method of healing" says *The Journal of the American Medical Association*. "In the alphabetical list in the directory after each name of a doctor of medicine appears the suffix 'Dr. Phys.' and a similarly identifying suffix after the name of each cult practitioner listed. The classified section in the directory is arranged similarly to differentiate between the practitioners of the different methods of healing authorized by law in Florida.

"This change in the method of listing practitioners in the telephone directories followed the enactment of a law that requires every practitioner of the healing art to place and keep in a

conspicuous place at each entrance of his office or usual place of business words or abbreviations denoting the particular kind or branch of healing in which he is lawfully entitled to engage. This law was considered as having established as a matter of public policy the desirability of public disclosure of the type of practice in which each practitioner engages.

"The telephone company to further the public policy and at the request of the medical profession of Florida, revised its methods of listing practitioners in its directories, a procedure it had heretofore hesitated to undertake.

"The Florida Medical Association with the co-operation of the telephone company has thus succeeded in eliminating a potential source of misinformation and danger for those who resort to telephone directories to ascertain the method of practice pursued by any practitioner of the healing art."

Sixty thousand syphilitic babies are born every year according to a report of the U. S. Public Health Service.

The technical name for snoring is sheet music.—*Bulletin of the Burcombe County (N. C.) Medical Society*

# Preventive Medicine

## BETWEEN MENTAL HEALTH AND MENTAL DISEASE

B LIBER, M D , DR P H , New York City

*Editorial Note Under this title will appear short summaries of "transition cases" from the service of this author in the New York Polyclinic Medical School and Hospital. The descriptions are not complete clinical studies, but will accentuate situations from the point of view of individual mental hygiene such as crop up in the everyday practice of medicine*

### The Beginning of a Speech Defect

**M**OST cases of speech disorders—temporary or permanent—are of mental origin or are due to mental conflicts or situational difficulties. There is a period in their formation when they can be foreseen and forestalled. When developed, they are difficult to cure.

A mother writes

Dear Doctor Y I am happy to inform you that Charlie does not cough any more. I believe he is all through with his bronchial trouble. He is always speaking about you. The beautiful pictures you presented him with grace the walls of his room and he looks at them the last thing before going to bed and the first thing when he awakes in the morning.

But I am obliged to come to you with another problem, which may not be very easy to solve. Charlie has a nervous trouble. The sight of blood strikes such terror at his heart that he is quite ready to faint. Only recently he cut his finger while making a toy aeroplane. I put a bandage on, and showed him that it was not bleeding any more. Still he feared the flowing of more blood so that all became dark before his eyes, and I had to dash water on his face, throw the windows wide open, and prop him up with pillows and cover him with blankets. This nervousness, however, has affected his speech. His natural power of speech is good and clear. At the age of two years he was able to say the most difficult words. But when he was quite young I noticed a tendency to rush his words, which would cause *stammering*. I have been thinking

of taking him to the Board of Education and placing him in a class for speech correction. But I hoped he would overcome it by himself. I would urge him to speak slowly. When he was younger I did not want to make him conscious of it, so I tried to sing to him when he seemed to hurry his speech. However, I am afraid it is getting worse instead of better, and last Friday he burst out crying during a spell of restlessness, and after I talked to him and urged him to tell me what the trouble was, he blurted out that he was worried about his speech.

When I was a child, I remember, I was not conscious of any defect in my speech until I reached the 4A Grade. Our principal was a very old lady, and the room I was in was so placed that she had to pass through it very often in order to get to classrooms. She used to tiptoe her way through our room, and her general expression seemed to frighten me and I actually became so nervous that when the teacher called on me to recite or read I was unable to say a word. My heart would beat so fast and I would get a lump in my throat. This condition continued getting worse. I was afraid to speak to anyone about it, even to my parents, as I feared they would not understand or sympathize with my plight. As a result I became terribly self-conscious and made a habit of avoiding meeting people, etc. When I reached my late teens or probably early twenties, I decided that I must overcome this condition. I diagnosed my own case as being afflicted

with a decided inferiority complex, and the only way to overcome that was to develop my personality and feel superior instead of inferior. I began to read books, as much as time would allow, attend lectures, and after a number of years of reading more and more books, interested myself in music, art, etc., I found myself to be a good conversationalist and gradually overcoming my old trouble.

When I married and became a mother I decided not to subject my child to the difficulties and disadvantages to which I had been exposed. I never frightened my boy about a bogeyman, I tried in every way to make him a happy, healthy, and comfortable child. When he reached school age we made it our business to live near the same school all the time so he would have it convenient, and feel at home. He is surrounded with plenty of books, and is already well read. He is one of the best and most intelligent boys in his class, so his teacher tells me, and he feels very much at home while in school. And still his nervousness persists and his speech is not what it should be. I am afraid I have already waited too long. What would you advise me to do?

I hope you will forgive my long letter, but I feel it necessary to give the history of the case so you may be in a position to judge what is best to be done.

With many thanks in advance for your kind advice and assistance, I am, etc.

Mrs X.

Dear Mrs X. Glad to hear of the improvement. As to 'nervousness' and the spells of speech impairment I wish to say that we have to be extremely careful. Neglect may be bad, but oversolicitation is very much worse. It would be easy to recommend you a good institution where speech defects are corrected free of charge and I will do so—if it becomes necessary

But I should not advise meddling unless a real defect has developed. The very fact that we pay attention to his speech, that we create a problem out of it, would condition the boy's mind and might bring about the state which we fear. The human mentality is funny and requires that we watch our step. Intelligent neglect or make-believe neglect is indicated in this case.

Just because the child jams his speech when excited is no reason for doing any thing that looks like a remedy.

Speak to him clearly and quietly and when he is entirely free from excitement, long after his attack (if I may call it such), tell him how important it is not to take anything overseriously. Do not reproach him during the time of his "fit," just pretend then that you pay no attention to it. Or, if he insists on blaming himself, tell him he exaggerates his condition, etc. And be gentle to him.

Use now the same tactics you used in his earlier years. Avoid making him self-conscious. But do not be alarmed yourself because you may transmit your sensitivity to him.

If he'll meet with no hostility, if his attention will not be attracted to the threatened defect, nothing will happen. He'll overcome it. I have full confidence in your intelligence and tact.

Finally, I wish to point out that speech defects are not hereditary and that they are not the direct result of the parents' nervous condition, as your letter might seem to imply. If it ever occurs in two or more persons in the same family, it might be due to imitation.—Dr Y

Conclusion. A long time has passed and no speech defect of any sort has developed.

207 West 106th Street

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A man was recently found to have a second appendix. His doctor we understand has decided to regard it as a reserve fund.—*Punch*, London

A fly was walking with her daughter on the head of a man who was very bald. How things change, my dear, she said. 'When I was your age, this was only a footpath.'—*Punch* Bow!



# Medical News

## Poliomyelitis in Upstate New York

**D**URING the first eight months of this year, to August 31, upstate New York reported 161 cases of poliomyelitis, with 87 in Erie County and 23 in Genesee County, says *Health News*, published by the State Department of Health. September added largely to this number. Deducting the 110 cases reported in these two counties, the upstate area had but 51 cases to September 1. Past experience has shown that most cases occur during the months of July, August, and September with the peak of the reported cases in September.

Later figures are given in another issue of *Health News* (Oct 2). Thus far, it says, the cases have been confined almost entirely to Genesee and Erie counties. From July 22 to September 21, inclusive, a total of 314 cases were reported. Of this number, 211 occurred in Buffalo and 38 in Batavia. The number of cases reported from Erie county, exclusive of Buffalo, was 38 and from Genesee county, exclusive of Batavia, 18.

Of the Buffalo cases, 156, or 73.9 per cent, have occurred in individuals under ten years of age and in Batavia 18 cases, or only 47.4 per cent, have occurred in children of this age group.

As to sex distribution, 134 of the Buffalo cases, or 63.5 per cent, and in the Batavia experience, thus far, 19 of the cases, or 50 per cent, have been in males.

The number of cases reported from upstate counties from January to August 31 follows:

Broome	1	Oswego	1
Chautauqua	1	Putnam	1
Chemung	2	Rensselaer	1
Clinton	1	Rockland	1
Columbia	1	Schuyler	1
Dutchess	5	Steuben	2
Erie	87	Sullivan	4
Genesee	23	Ulster	1
Monroe	3	Warren	2
Montgomery	1	Wayne	2
Nassau	6	Westchester	4
Onondaga	7	Wyoming	1
Orange	1	Yates	1

The greatest number of cases were reported during the years of 1916 and 1931 with 4,215 cases in the former year and 2,051 in the latter. The smallest number of cases was reported in 1920 when there were only 60 for the entire upstate area.

Cases reported—1916 to 1938—are as follows:

Year	Cases	Year	Cases
1916	4,215	1928	447
1917	156	1929	424
1918	99	1930	660
1919	104	1931	2,051
1920	60	1932	191
1921	565	1933	555
1922	393	1934	149
1923	367	1935	772
1924	870	1936	155
1925	488	1937	393
1926	564	1938	70
1927	378		

Infantile paralysis was discussed by Buffalo doctors on September 13 at a clinic conducted by physicians who have devoted much of their time to this disease epidemic in Buffalo.

The doctors conducting the clinic admitted at the outset that little is known about the disease, but hoped that some day a specific cure will be found. The clinic, held in Children's Hospital, was part of a postgraduate course of the University of Buffalo School of Medicine.

The cure of the disease was discussed by Dr. W. Ward Plummer and Dr. Robert M. Cleary, both of whom have treated patients afflicted with poliomyelitis.

### Rest Is Key to Cure

"The nubbin of the treatment for infantile paralysis is rest," Dr. Plummer declared. "There should be rest for a month even in cases where it is doubtful whether the patient has paralysis, because it often has been found that permanent deformity sets in when a patient is allowed to move around too soon."

Dr. Plummer urged doctors to "hospitalize as many cases as possible."

"The work can't be done at home," he said. "The hospital has the equipment necessary to keep the limbs and muscles of patients quiet. There is a higher rate of salvage if the patient is kept down in a hospital."

Hospitalization of all cases was also advocated by Health Commissioner Francis E. Fronczak who said that "every case should be hospitalized, the home is not able to give proper care."

### Must Not Overdo

Dr. Cleary observed that "the hardest thing to decide in infantile paralysis is when the cases can get up." He said that ravaged muscles which have been able to regain a little power lose this power immediately if they are allowed to overdo. He said that stretching a mending muscle also destroys power.

He advised doctors to have their patients put in a restful, immovable position immediately and then to "leave them alone for the first few weeks because you can't tell early how much damage has been done."

Dr. A. Wilmot Jacobsen discussed the symptoms and diagnosis.

"The onset of the disease is abrupt," he asserted. "It resembles gripe or influenza. There is a fever, headache, and frequently vomiting."

### Stiffening of Neck

"The temperature is between 100 and 103 and there is likely to be general aching all over the body. These are the early symptoms."

"In making a diagnosis I pin faith in a stiffening of the neck or stiffening of the spine. You can't make a diagnosis for infantile paralysis without these. One trick in making these tests is to have the patient sit up in bed and try to put his head between his knees. He can't do this if he has poliomyelitis."

"There is not likely to be paralysis after the eighth day, but as long as the fever lasts paralysis may still occur. Death in infantile paralysis is caused by respiratory paralysis."

Dr Gilbert M Beck traced the probable course of the disease from the nasal passages to the brain and nerve centers, but then cautioned that even after paralysis occurs there is a chance the patient might not have poliomyelitis.

#### Certain Exceptions

"Once paralysis occurs, the diagnosis seems simple," he said. "But there are certain cases where the patient will not have poliomyelitis. Rheumatic fever, for instance, with its swollen joints may cause the trouble. Osteomyelitis

may confuse. Or perhaps it is acute neuritis which causes great pain.

A discussion of recent experiments in infantile paralysis was presented by Dr Edward C. Rose now head of the experimental bacteriology department at the University of Minnesota and a research specialist at the Mayo Clinic in Rochester, Minnesota. Dr Herbert H. Bauckus, chairman of the Buffalo Health Board discussed the closing of theaters and schools for children.

The work of the State Health Department in the present epidemic was outlined by Dr Archibald S. Dean, district director and Dr Alexander Langmuir of Albany. The speakers were introduced by Dr Frank N. Potts.

### County News

#### Albany County

More than 125 Albany physicians and their wives attended the annual clambake on September 8 at Picardy Grove, arranged by Dr Thomas Tyrrell and Dr William Rausch as co-chairmen. Highlight of the program was a baseball game between the Indians captained by Dr Tyrrell and the Braves captained by Dr Martin Freund. When the score stood at 8-8 after nine innings the teams split the prize—a box of cigars.

Dr Leonard B. Rosen won the 100-yard race for men. Dr William Colfer was first in the ball throwing contest, while Dr Harry Jasper and Mrs. Joseph Lawrence placed first in the needle threading contest.

On the women's program Mrs. John Clemmer won the balloon blowing contest. Mrs. Benjamin Hoffman won the ball throwing contest and Mrs. Albert Vander Veer the 75-yard uphill foot race.

The New York State Society of Pathologists held their annual meeting and dinner on October 7 at Albany. The guest speaker was Dr Terry M. Townsend, president of the Medical Society of the State of New York.

Dr W. S. Thomas is president and Dr M. J. Fein is secretary of the Society.

#### Allegany County

The annual meeting of the Allegany County Medical Society will be held on October 26 at Belmont with election of officers. There will be a paper by Dr Bernard Brower of Rochester on Applied Psychology and Its Relation to the Practice of Medicine.—Reported by E. F. Comstock, M.D., Secretary.

#### Bronx County

The Bronx County Medical Society will meet on October 18 for a State Society Meeting. The speakers will be Dr George E. Milani (inaugural address), Dr N. B. Van Etten, Dr Terry M. Townsend, Dr Joseph S. Lawrence and Dr Peter Irving.

#### Broome County

Dr Glenn R. Ford, of Endicott, who died on September 9, had served as chief of the x-ray department of the Ideal Hospital since its opening sixteen years ago and for the past two years had been chief of the medical staff.

#### Columbia County

The annual meeting of the Medical Society of the County of Columbia was held at the City Hospital, Hudson, on October 3. Two papers were presented on the treatment of pneumonia.

Dr Louis Van Hoesen has resigned as Health Commissioner of Columbia County effective December 1 after serving seven years, or since the County Board of Health was organized.

#### Delaware County

The village of Andes honored Dr. Charles L. Wakeman on August 25 for thirty three years of faithful service to the community. In the afternoon there was a parade of children whom he had delivered into the world followed by a ball game between teams chosen from the group. A banquet was held at 8 p.m. attended by invited guests and members of the county medical society. In the evening Senator Joe Hanley was the speaker in the high school auditorium which was filled with admirers of Dr. Wakeman.

The September meeting of the Delaware County Medical Society was held in Walton on September 20 at which meeting Dr M. A. McIver of Cooperstown spoke on "Thyroidosis." Mr. H. T. Hebbard, Commissioner of Public Welfare of Delaware County also spoke on the problems of administration of relief following which there was a discussion.—Reported by O. Q. Flint, M.D., Secretary.

#### Dutchess County

The Dutchess County Medical Society will meet at the Amrita Club in Poughkeepsie on October 18 at 8:30 p.m. Dr William C. Clarke, of Cornwall Bridge, Connecticut, will speak on "The History of Surgery for the Past 200 Years," with presentation of instruments.—Reported by H. P. Carpenter, M.D., Secretary.

#### Erie County

The October meeting of the Medical Society of the County of Erie will be held on October 18 at 9:00 p.m., in the Georgian Room Hotel Statler, Buffalo.—Reported by Louise W. Beamis, M.D., Secretary.

The postgraduate course of the University of Buffalo School of Medicine in September had a registration of 65 physicians, representing 22 states and the Province of Ontario and embrace

ing 36 colleges Eighty-two members of the medical school's staff conducted classes, round-table discussions, clinics, and bedside examinations

### Jefferson County

The Medical Society of Jefferson County met at Watertown on September 14 and listened to a paper on "Infections of the Face and Neck," by Dr Herman E. Pearce, Jr., of the Rochester University School of Medicine.

### Kings County

As part of the plan to increase the educational benefits of the Kings County Medical Society, the clinical committee has instituted a program of lectures to consist of reviews and recent advances in all the divisions of medicine and surgery. These refresher courses are to be given every Monday afternoon at 3:30 P.M. in the MacNaughton Auditorium of the Kings County Medical Society. Two courses will be given on the same afternoon, and when they are completed two other courses will be started. The periods of the lectures will be 45 minutes, the first course from 3:30 to 4:15 P.M., and the second course from 4:15 to 5:00 P.M.

The courses will be open free to members of the society in good standing and to internes. A fee schedule has been arranged for nonmembers as follows: any single lecture, \$1.00, one course in one department, \$5.00, the entire course, \$15.

Admission for both members and nonmembers will be by registration card only. Registration can be made by application to the Kings County Medical Society. Registration cards will be issued in advance of the series and will be limited to the seating capacity of the room.

### Livingston County

Dr Albert E. Leach, of Mt. Morris, died on September 8 at the age of seventy-three following a coronary occlusion. Dr Leach was a graduate of New York Homeopathic in 1891. He was in active practice up to within two weeks of his death. He did general practice and was Health Officer of Mt. Morris for forty years.

The regular Annual Meeting of the Livingston County Medical Society was held on October 3 in Geneseo, at Big Tree Inn. The business meeting with election of officers and appointment of committee chairmen was at 5 P.M. Dinner was served at 6:30 P.M. After dinner Dr Joseph B. Loder, our guest speaker from Rochester, discussed "Common Obstetrical Complications"—*Reported by Alden J. Townsend, M.D., Secretary-Treasurer*

### Nassau County

The October meeting of this Society will be held at the Cathedral House, Garden City, on October 31.

The scientific program will be in charge of Dr Louis C. Kress, Director, Division of Cancer Control of the State Department of Health. Members of the Nassau County Dental Society and many prominent laymen have been invited to attend the meeting and hear Dr Kress explain the program of the newly instituted Division of Cancer Control and discuss the present basis for hope for cancer patients.

In the afternoon there will be held in the same place a meeting for women under the auspices of the Woman's Auxiliary to the Nassau County Medical Society and the Cancer Committee, and with the active cooperation of the women's clubs of the county. This meeting will also be addressed by Dr Kress and by Dr Norman Treves, Consultant to the Nassau County Tumor Clinic, who will discuss a paper with the intriguing title "It's Your Breast." At both the afternoon and evening meetings there will be a display of educational material.

### New York County

Dr Walter Clarke, executive director of the American Social Hygiene Association, has been made a knight of the Legion of Honor.

The citation was made for his work with the League of Red Cross Societies and other international health activities in which the French Government is interested, as well as for service as an officer in the A. E. F.

The official presentation was held in the office of the French Consul in New York.

Dr E. D. Friedman has been elected President of the New York Neurological Society for the year 1939-1940.

### Niagara County

Dr Victor L. Cohen, of Buffalo, addressed the Medical Society of the County of Niagara on September 12, in the Tuscarora club, Lockport. Dr Cohen spoke on "Allergy" with particular reference to the management of the prevalent ragweed-sensitive patients. Food and other allergies also were discussed.

### Onondaga County

Dr Thomas H. Halsted, of Lyndon Road, Fayetteville, widely known Syracuse physician and medical specialist, has announced plans to move his family to New York City, where he will resume the practice of medicine after two years in retirement.

Dr Halsted is a former president of the State Medical Society. In practice in Syracuse since 1889 up to his retirement two years ago, Dr Halsted is a widely known specialist in laryngology and otology.

Dr Harry J. Brayton, head of the Onondaga County Sanatorium for twenty-four years, from its beginning in 1915 till his retirement last June, died on September 20 at the age of fifty-eight.

### Ontario County

"Vitamins" was the subject of a talk by Dr W. B. Richards of the Clifton Springs Sanitarium staff, at the first fall meeting of the Canandaigua Medical Society on September 14. Dr Malcolm R. Blakeslee, of Shortsville, entertained the group at dinner in his home, the business meeting following.

Dr James F. Maltman, Canandaigua physician, has been appointed medical director of the Ontario County School Hygiene District, succeeding Dr John A. Crowther, of Honeoye, who resigned recently.

**Queens County**

The fall meeting outing and dinner of the Associated Physicians of Long Island was held on September 28 at Jamaica. The scientific program was provided by the medical staff of the Mary Immaculate Hospital, Jamaica. The program for the day was as follows 12 30 P.M. inspection of the hospital 1 00 P.M. luncheon as guests of the hospital 2 00 P.M. scientific session 1 'Importance of Early Surgical Diagnosis, Dr Frank N Dealy 2 'Coronary Artery Disease' Dr Goodwin A. Distler 3 'Toxemia of Late Pregnancy' Dr James P McManus 4 'Spina Bifida, Dr Benjamin Shapiro 5 'Dentistry in a General Hospital,' Dr Joseph Stahl 4 00 P.M. executive session 6 30 P.M. dinner at the Pomonok Country Club Kissena Boulevard Flushing

**Rensselaer County**

Dr Lebbeus B Schneider, who died at his home in Troy on September 19 at the age of sixty two had practiced medicine there for over forty years.

**Saratoga County**

The October meeting of the Saratoga County Medical Society will be held October 26 at the Metropolitan Life Insurance Co Sanatorium at Mt. McGregor Saratoga.—Reported by *M J Magovern Secretary*

**Schenectady County**

The General Electric Company invited the membership of the Schenectady County Medical Society to participate in the following program on October 5 2 00 P.M. tour of inspection through factory followed by House of Magic show 6 00 P.M. dinner and 7 30 P.M. meeting with General Electric officials to discuss problems of mutual interest.

This meeting took the place of the regular October meeting.

—Reported by *Jos H Naumoff M.D. Secretary*

**Seneca County**

The regular meeting of the Seneca County Medical Society was held at Willard on October 11 The program was Arthritis —L M Lockie, M.D. Buffalo

Arthritis from the Orthopedic View"—R. D. Severance, M.D. Syracuse.

Evaluation of Newer Remedies in Arthritis"—T W Maloney M.D. Geneva.

—Reported by *D B Walker M.D. Secretary*

**Suffolk County**

The Suffolk County Medical Society will meet at the Crescent Club Huntington, on Wednesday, Oct 25

**Tioga County**

The fall meeting of the Medical Society of the County of Tioga was held on September 27 at 1 P.M. at Fontainebleau Inn on Cayuta Lake. The speaker was Dr William F Paine of the State Institute for Cancer at Buffalo who spoke on 'The Microscope in Scientific Crime Detection.

—Reported by *I N Peterson M.D. Secretary*

**Westchester County**

Mt. Vernon veterans have given a resuscitator and inhalator to the city

Dr Wendell R. Ames of Middletown attached to the State Health Department, has become acting Health Commissioner of Mount Vernon

He will take over the department during the eight months Health Commissioner T. A. Jost will spend at the Public Health School of Harvard University

Dr Thomas A. Manning of New Rochelle, who died on September 5 at the age of seventy five, had practiced medicine there for forty two years.

**Deaths of New York State Physicians**

Name	Age	Medical School	Date of Death	Residence
Siegfried F Bauer	60	Wuerzburg	September 2	Manhattan
James H Borrell	48	Buffalo	September 20	Buffalo
Harry J Brayton	58	Syracuse	September 20	Syracuse
Max Bresler	70	P & S. N. Y.	September 15	Manhattan
Ell M Ellis	30	N. Y. Hom.	June 20	Brooklyn
Glenn R. Ford	46	Syracuse	September 9	Endicott
Isidor B Goodman	49	Univ. Pa.	June 21	Bronx
Albert E Leach	73	N. Y. Hom.	September 8	Mt. Morris
John A Mogenhan	45	Buffalo	June 2	Rochester
Lebbeus B Schneider	62	Albany	September 19	Troy
Loring W Turrell	80	Yale	September 15	Smithtown Branch

# The Woman's Auxiliary

To the Medical Society of the State of New York

## Dear Auxiliary Members

I trust that you have had a most enjoyable summer and that your thoughts are now turning toward the work of the auxiliary

These are most troublous times both at home and abroad and there will doubtless be many demands upon our time and our purses, but do not let us forget that, as doctors' wives, it is our duty to help uphold and preserve the best traditions and practices of organized medicine

The regular Fall Executive Board meeting will be held October 17 and 18 in Saratoga

Springs and, at this time, we are to have the great pleasure of welcoming as members of our auxiliary family three new counties Sullivan, Erie, and Washington

Let each auxiliary member become organization-minded this year so that New York State can again report the largest increase in membership for the year when the National Convention meets in New York City in June, 1940

Won't you all help?

MARY T TOWNE, *President*

## County News

### Nassau County

The first autumn meeting of the Directors of the Woman's Auxiliary to the Nassau County Medical Society was held in the Nassau Hospital auditorium on September 20. It was reported that extensive work has been done by the Public Health and Public Relations committee on a most interesting program for our Health Institute which is to be held in the spring

The Woman's Auxiliary is working in close cooperation with the County Cancer Committee headed by Dr. Richard Derby, with our president, Mrs. Luther Kice as co-chairman, on a meeting which will be held October 31 in the Cathedral House at Garden City

At the auxiliary meeting, Tuesday, September 26, Miss Muriel Bliss, Chairman of the Nassau County Committee on Cancer, was guest speaker

### Saratoga County

A delightful luncheon was enjoyed by the executive committee of the Woman's Auxiliary to the Medical Society of Saratoga County last month at the Glass Restaurant in Schuylerville, guests going later to the home of Mrs. Thomas E. Bullard, acting president.

The first meeting of the auxiliary was held on October 3 at 8 00 P M., at the home of Mrs. Duby in Schuylerville

Two doctors discussed colds and pneumonia and the importance of hospitals to communities. Mrs. Bullard gave her reminiscences as a country doctor's wife and several members of the executive committee gave news items of interest to the medical profession. Musical selections concluded the program

### Sullivan County

An organization meeting was held Tuesday evening, June 21, at the Lenape Hotel in Liberty. It was well attended and the enthusiasm shown augurs well for the success of this auxiliary. Mrs. Ralph S. Breakey was unanimously chosen president. The meeting was followed by a delicious buffet supper

### Washington County

In conjunction with the annual picnic of the Washington County Medical Society, held at the Willard Hotel, Cleverdale on Lake George, July 11, a meeting was also held to organize a Woman's Auxiliary. Washington County Medical Society was one of the first counties in the state to organize a county medical society, and it seems most fitting that so early in the auxiliary history this county should become a member of the State Auxiliary. Mrs. Royal E. La Grange, of Fort Ann, was elected president

## HOUSEWIFELY PHYSIC

Dr. Franklin H. Church, of Salem, N. J., has discovered the following verses written by Thomas Tusser, an English farmer who was born about the year 1523, and they appear in the *Journal of the Medical Society of New Jersey*. The author wrote the verses about the year 1560, and published them for the benefit of housewives. They are adapted to public health nurses of the present day in giving homely advice during their visitations

### HOUSEWIFELY PHYSIC 1550

"Good huswife provides, ere a sickness do come,  
Of sundry good things in her house to have some.  
Good aqua composita, and vinegar tart,  
Rose-water and treacle, to comfort thine heart.  
Cold herbs in her garden, for agues that burn,  
That over-strong heat to good temper may turn.  
White endive and succory, with spinach enow,  
All such with good pot-herbs, should follow the plough

Get water of fumitory, liver to cool  
And others the like, or else lie like a fool  
Conserves of barbary, quinces and such  
With syrups, that easeth the sickly to much  
Ask Medicus' counsel, ere medicine ye take,  
And honor that man for necessity's sake  
Though thousands hate physick, because of the cost,  
Yet thousands it helpeth, that else should be lost  
Good broth and good keeping, do much now and then  
Good diet with wisdom, best comforteth man.  
In health, to be stirring shall profit thee best,  
In sickness, hate trouble, seek quiet and rest.  
Remember thy soul, let no fancy prevail,  
Make ready to God-ward, let faith never quail  
The sooner thyself submittest to God,  
The sooner he ceaseth to scourge with his rod "

# Public Health Notes

J ROSSLYN EARP, L.R.C.P., D.P.H.

New York State Department of Health

## At the Soviet Pavilion

**R**USSIA's march into Poland on September 17 did not prevent a good attendance at the Soviet Pavilion (World's Fair) on the following day by medical men who had been invited to a discussion on Public Health in the Soviet Union, nor were any unneutral sentiments expressed. Whatever they may think privately about socialized medicine, the visitors' questions indicated only a courteous interest in its practical exposition in Russia.

Most of the discussion was in the Russian language and took place between the lady chair man, Mrs. P. S. Meyer and a medical visitor from Moscow Dr. A. D. Ochkin who came to this country for the recent cancer congress at Atlantic City. Questions asked in English were translated into Russian, answered by Dr. Ochkin at length in Russian, and then a brief résumé of the answer was given in English. As a result, the curiosity of the audience could not well be appeased in the short time available.

Dr. Ochkin very thoughtfully refrained from reading his opening address in Russian; it was read in translation only. The statistics presented are already familiar to those acquainted with official Soviet literature\* and deal with the increase in the number of physicians, hospitals, maternity centers, etc., and the decrease in mortality from preventable disease. Russia's about face on the law governing abortion was explained on the ground that maternity care and

the general welfare have now advanced to a point where abortion is no longer necessary. They have even advanced to the point where the government is willing to subsidize large families, and those who remained to see the movies enjoyed a picture of a father and mother reading an official reminder to come to the bank to get your next numerous family allowance.

Although Dr. Ochkin modestly refrained from reference to his own specialty of cancer surgery, the group was naturally anxious to learn at first hand about the Russian program for cancer control. What is done in Russia to encourage early diagnosis? Apparently no more than is done here—if as much. The doctor knows the people in his district. He relies apparently on the patient complaining of symptoms. It is true that treatment is free, but 'malingering' is discouraged by the most effective sort of social condemnation: the malingeringer's name is posted with his selfish record on the bulletin board at the factory. It is easy to imagine that a sensitive person would wait until the symptoms were pretty serious before troubling the doctor.

But it may be that imagination misleads me. It may be that in the Soviet Union they really have periodic examinations of the apparently well. Difficulties of language cramp our understanding.

## Liquidating the Parrot

**T**HE Public Health Council has strengthened its regulation (No. 38) prohibiting importation, breeding, or sale of psittacine birds by making it illegal also to offer these birds for sale. The amendment comes into force on the first of October. It had been found that enforcement of the old regulation was difficult.

The parrot has been condemned because it is the natural reservoir of a virus disease which causes serious illness in man. When we know

more about virus diseases, shall we, I wonder, discover that other domestic pets also are natural reservoirs and, if so, how far shall we be allowed to go in liquidating them? Those who are seriously concerned about preserving our pets might well interest themselves in research looking toward active immunization against the viruses. This may turn out to be the most effective protection, although so far it has not been too successful, e.g. against rabies in dogs.

## A Case of Diphtheria

**F**ROM the Hornell district comes a report of a somewhat unusual case of diphtheria. The patient was 65 years of age, lived alone, and suffered from a severe sore throat. In this emergency he was attended by a second individual 63 years of age, who nursed and cared for him

until he died suddenly of dilatation of the heart. Although the appearance of the throat was not typically diphtheritic, swabs were taken post mortem and virulent diphtheria organisms were cultured. The nurse also contracted diphtheria was given antitoxin, and recovered.

Now that the incidence in the preschool-age group has been reduced by active immunization, we have to remember that diphtheria may occur at any age.

\* See Public Health Protection in the U.S.S.R. by Prof. N. Propper-Graschenkov, Assistant People's Commissioner of Public Health, Moscow, 1939.

case might reasonably require and his purse permit, but this matter was left open in the contract. It was a matter which the employees of the lead company were left to determine for themselves, and if, through apprehension, financial embarrassment, or for any other cause, an employee sustaining a disability otherwise compensable under the policy should determine not to submit himself to an operation in order to relieve against the disability, his refusal could avail defendant nothing, since he is under no contractual obligation to so submit and thereby incur expense and risk his life so that defendant might be relieved of its liability to him under the policy."

It is interesting to note that a few years ago a similar case presented to the courts of New York State led to a different result.\* In that case the plaintiff, a butcher thirty-seven years of age, sustained a large irreducible right inguinal hernia. According to the proof his duties at his trade required his lifting heavy pieces of meat, and the injury prevented him from engaging in such activities, or in fact from standing on his feet for any length of time. His physician had advised operation and he had refused. His own doctor, it seems, testified that in his opinion a

\*Finkelstein v Metropolitan Ins Co 151 Misc 113, 152 Misc 439, 277 N Y S 938

prudent man would have submitted to the operation. There was also testimony that the proposed operation was successful in a high percentage of cases, though involving some risk of failure, but that without operation, the hernia would become progressively worse, and eventually might cause death. Upon the trial, the Court ruled that the plaintiff was under no duty or obligation to undergo an operation for the repair of the hernia, and judgment was awarded against the insurance company.

The defendant appealed to the Appellate Term of the Supreme Court, and that Court reversed the ruling of the Lower Court with a brief opinion as follows:

"Inasmuch as the insured's doctor advised him to submit to an operation for hernia, and testified that in his opinion a prudent man would have followed that advice, it cannot be held that the condition from which the assured was suffering constituted a total and permanent disability within the meaning of the policy. See *Pallini v B M T Corp* 215 App Div 430 (a compensation case)."

That decision in favor of the defendant was carried upon a further appeal to the Appellate Division of the Supreme Court, and that court finally affirmed the Appellate Term's ruling but in doing so, wrote no opinion.

## "MURDER BY DISEASE"

*The Journal of Criminal Psychopathology* is a new publication, issued at the Woodbourne Institution for Defective Delinquents, New York State Department of Correction. Dr Vernon C Branham, the Superintendent, is editor. In the first issue Dr Branham reviews a striking article on "Murder by Disease" in *Annales of Medical History*. It gives a brief résumé of the biographies of four Russian physicians who were prevailed upon to utilize their medical knowledge for the elimination of enemies of the Soviet State. Levin, the most active of the group, was born in the lower middle class. In 1920 he was transferred to the Kremlin Hospital and many officials of the Soviet Government came under his care. He never took an interest in politics but became involved in the crime of murder through the intercession of others. The second physician, Pletnev, had been previously convicted of criminal assault on a woman patient. His scientific attainments were so high, however, that he was able to live down his disgrace. Even after his imprisonment he was permitted to have free access to medical literature and thus succeeded in writing a monograph twelve pages long. The third member of the group, Kazahov, was perhaps the most gifted of the three. He finally became head of the Institute for Research in Lysate Therapy (glandular extracts), a very large laboratory and clinic. His self-seeking attitude and the use of his official position to demean his colleagues made him somewhat

ostracized. The fourth member of the group Kazakov, died during the course of the investigation. He played a small role only in the affair.

During the years 1932-1934 an opposition group against the prevailing Soviet Government came into being. Among a number of prominent men involved, Maxim Peskov, the son of the great writer Gorky, stood out. While he was of poor physique, a chronic alcoholic, and a moral weakling, he had a certain following because of his father's fame. The vice chairman of the Soviet Secret Service prevailed upon Dr Levin to bring about the death of Peskov through improper treatment for an attack of pneumonia. The other physicians entered the case as consultants. Two other victims were removed by similar methods after repeated pressure had been brought upon the physicians by the police. In this case a cardiac condition became aggravated by improper treatment. Finally, the writer Gorky became an object of their attack but his essentially rugged constitution enabled him to withstand excessive medication for some time. Upon his death an official investigation by a Commission of Medical Experts resulted in a conviction of all three offenders. The author calls attention to the fact that this is a new chapter in the history of medical crime. Some of the easily detected methods of poisoning were avoided through a technic of improper medica-

# Hospital News

## Emergency Hospital Flying Squads

**T**HE Department of Hospitals of New York City has started the organization of an emergency corps, equipped to render swift aid on a large scale in case of disaster such as the Wall Street bomb explosion of September 10, 1929, in which 80 persons were killed and 100 or more injured.

The Bellevue Hospital unit, with thirty-seven physicians and several hundred nurses participating as volunteers, was established by an order issued on September 9 by Dr. W. F. Jacobs, medical superintendent of the institution. The unit is ready for service at any hour of the day or night with a motor bus in readiness in the hospital garage to take physicians, nurses and surgical supplies to the scene.

Twelve physicians and twelve nurses will be subject to such emergency call in each eight hour period. Emergency supplies, including sterile drums stocked with bandages, splints, instruments, and drugs, have been stored in a room adjacent to the main emergency room of the hospital and are to be kept there in readiness for instant use.

The call for the emergency corps will be issued by Dr. Adam Eberle or Dr. Edward Bernecker, general departmental medical superintendents.

The hospital switchboard, on receipt of the call, is to notify at once the chief corps physician and the chief corps nurse on duty at the time. On the even days of the month Dr. Frank Nobilotti will be on duty as chief corps physician and on the odd days Dr. Sidney Lyons. Miss Godfrey will be acting as chief corps nurse from 4 P.M. to midnight. Miss Furman, from midnight to 8 A.M., and Miss Chamberlain and Miss Weddigge will share the duty from 8 A.M. to 4 P.M.

The bus driver on duty and the nurse in charge of the hospital's emergency ward also will be notified by the switchboard operator. The chief corps physician and the chief corps nurse will assemble their respective staffs at the garage, to which the necessary supplies will have been sent by the nurse in charge of the emergency ward.

Miss Blanche Edwards, head of the Bellevue Hospital Nurses Training School, arranged for the participation of nurses in the plan. Miss Godfrey is acting as director of the emergency corps nurses.

Similar emergency corps of doctors and nurses, to act as "Home Defense Corps" in case of a major disaster are being formed in Kings County Hospital and other city institutions.

## Great Improvement in Obstetrics in General Hospitals

**A** FEW years ago Dr. Joseph B. DeLee, Paul de Krulff and others were engaged in a violent attack upon all general hospitals that accepted maternity patients. The data they published appeared to indicate that maternal mortality was unduly high in such institutions. The inference was even drawn by some writers that the general hospitals were themselves largely responsible for the high maternal mortality in this country.

Undoubtedly there was a core of truth in the statements, remarks the editor of the *Modern Hospital*. Some general hospitals did accept women for delivery without having the proper physical facilities or staff organization to assure protection to these women from the infective hazards to be found in any general hospital. Looking back upon the developments of the last five years, we may now feel grateful to DeLee and his followers for their overstatements.

The criticism has resulted in tremendous improvements. In an article entitled "An Obstetric Audit," which appeared in the *Journal of the American Medical Association* for July 29, Dr. Scott C. Runnels, secretary of the Hospital Obstetric Society of Ohio reviews a mass of evidence on the present state of obstetric care. He concludes that obstetrics in the United

States has been making decided and accelerated strides in the reduction of maternal mortality and that the hospitalization of women for delivery in well run hospitals has played an important part in achieving this reduction. The puerperal death rate per thousand live births has fallen from 6.19 in 1933 to 4.89 in 1937—a reduction of 21 per cent in four years.

Dr. Runnels gives a substantial share of the credit for the improvement in obstetric practice to the increased percentage of deliveries in hospitals and to the growing sense of responsibility felt by hospitals for the character of work being done within their walls.

The two most important safeguards, in Dr. Runnels' opinion, are (1) that the hospital maintain proper obstetric regulations, especially isolation of the department, as outlined by the American Hospital Association, and (2) that the hospital have a proper staff organization, including a chief, with power to enforce consultation for all questionable conditions.

That there is still much ground to be gained is indicated by Dr. Runnels' final statement that if obstetric conditions were as favorable over the entire United States as are those existing today in a quarter of the country there would be an annual saving of 2,500 lives.

## Operating-Room Explosions

**T**HE frequency of explosions of respiratory anesthetics occurring in hospital operating rooms is a matter of growing concern to both surgeons and hospital administrators. In recent months, we are told by *Hospitals* (Chicago), no

less than five explosions, attended with severe injury or loss of life, have been reported in hospitals, all due to a static spark.

The highly explosive nature of some of our anesthetic gases including cyclopropane, ethyl



ene, or other combinations, increases the hazards of accidents over the dangers of anesthetic gases in use several years ago

Too great dependence must not be placed on metallic grounding, we are warned. Such grounding protects only the piece of apparatus actually grounded, and may actually increase the hazard if brought near to any ungrounded object or person that may be a source of accumulated static. Surgeons, nurses, other personnel, or rubber-shod equipment can accumulate static capable of producing an electric spark. In one of the five recent operating-room explosions, the investigation placed the responsibility on static developed by friction of the anesthetist's clothing on the rubber cushion of his chair.

It is generally accepted that a relative humidity of 60 per cent provides adequate protection against the accumulation of static, and many

hospitals are now installing air conditioning apparatus for this purpose. However well installed, the effectiveness of air conditioning depends on how carefully it is controlled to maintain the proper degree of humidity and sufficient air movement to prevent undue concentration of the explosive gases.

Investigators are studying methods of installing absorbers and protective screens around the anesthetic machines and the anesthetic field, which will greatly reduce, if not entirely eliminate, the spark hazard.

Certain it is that the inflammable anesthetics are here to stay. Even nitrous oxide ether is inflammable in certain mixtures, and the hospital which does not take adequate means to control the ignition hazards of the operating room is not "exercising due care and diligence" in the protection of its patients.

### Health Examinations for Hospital Employees

THE old adage that the cobbler's children have no shoes applies very well indeed to health examinations for hospital employees, observes Dr. Lucius R. Wilson, superintendent of John Sealy Hospital, Galveston, and chairman of the Council on Hospital Planning and Plant Operation of the American Hospital Association, in a paper now published in *Hospitals* (Chicago). This paper was presented at the American Hospital Association Convention, Dallas, Texas, September 26, 1938. Very few hospitals have a carefully worked out and organized department for the health of their employees. This is most peculiar when we consider that hospitals strive to be the one agency of each community to which the population can turn for aid in their health problems. Criticism can be, and justly should be, directed to hospitals for their laxity in caring for the health of their own personnel while attempting to dispense health services to every other citizen in the community.

Some hospitals make no attempt to have a health program for their employees, and depend entirely on the ability of the employee to find a staff member with patience enough and time enough to listen to the employee's complaints and prescribe something to alleviate the described symptoms. Such a health program is practically useless. Other hospitals depend on the resident

staff and the outpatient department to care for the employees. This results in somewhat better care but is time-consuming, as the employees must await the convenience of the resident physician or await their turn in the outpatient department. This method has the distinct disadvantage of not keeping a complete record of the illness and examination of each employee.

The best method, but unfortunately the one less frequently adopted, is to have one physician assigned this duty and provided with an office in the hospital in which he can see employees at a definite hour each day. This hour should be early in the morning, preferably between eight and nine o'clock, so that night employees going off duty can be seen without waiting too long and day employees can be seen as they report for duty or shortly thereafter. If an emergency arises he, of course, is expected to be available.

A prospective new employee, before assuming his duties, should be referred to the health office for a complete physical examination. A file of all employees' health records should be kept in the physician's office.

Physical examinations should be repeated each year. If this is done minor conditions which in time might prove serious can be checked. This will protect the employee and spare the hospital the expense of hospitalization at a later date.

### Newsy Notes

Mayor F. H. LaGuardia placed the cornerstone of the Tremont Health Center, 1826 Arthur Avenue, the Bronx, on September 18, after a speech in which he said that the services performed in public health centers did not infringe on the work of doctors in private practice.

The Mayor said that public health officers had to apply themselves to such problems as prevention of illness, control of contagious diseases, and sanitary inspection, and that doctors in private practice did not have the necessary training for such work.

In introducing the Mayor, Dr. John L. Rice, Health Commissioner, remarked that the Tremont district enjoyed a low death rate from diphtheria.

"Some people may inquire," the Mayor said, "why we want to build a health center in a district which has a high health standard and low

death rate. The answer is the real definition of a health center. Its function is not to cure, but to prevent people from getting sick. Here we have a healthy district. That is all the more reason for keeping the district healthy and not delaying until the district becomes affected by contagious diseases. People of healthy districts are just as much entitled to health centers as people in districts where the health standards are low."

The four-story center, which is being built by the Department of Public Works, will open next May.

Local newspapers give large headlines to what they call a hospital "blackout" for the Mayor of North Tonawanda, who is reported to have tried to interfere drastically in the management of the De Graff Memorial Hospital there. A referee of

the Supreme Court in a decision on September 2, holds that he acted in 'an arbitrary capricious and unreasonable manner' in refusing to appoint to the hospital board persons legally designated, and in trying to remove hospital trustees, the superintendent and others. He is enjoined to appoint the designated board members and not to interfere further. The physicians of the Twin City Academy of Medicine had vigorously opposed the Mayor's attempted 'purge' as it is called. The Mayor says he will appeal the case, but the North Tonawanda *Evening News* comments that he 'can scarcely expect any change even if he should appeal.'

The New York Junior League's Hospital Libraries course, which for several years has served 14 city hospitals will be opened this year to volunteers from 93 hospitals represented by the metropolitan United Hospital Fund. Since the league cannot supervise library service for all these hospitals the training course to volunteers will be given twice weekly from October 24 to December 12 at the league clubhouse.

Lecturers will include Dr Edward Allen of New York Hospital. Miss Jennie Flexner readers adviser for the New York Public Library and John McCormack, president of the Hospital Administrators Association.

Our young women are not content with merely collecting and distributing books, pushing book carts around hospital wards mending and rebinding worn books, said Mrs A Victor Charbonnier chairman of the league's hospital libraries committee. They want to inform themselves more adequately on book needs and book service so that they can make the personal contact between book and patient truly vital and worth while.

More than thirty superintendents and assistants of hospitals attended a luncheon meeting of the Northeastern New York Hospital Association on September 14, in the Glens Falls Hospital as guests of Miss Rose Q Strait superintendent of the hospital. Miss Clara P Sinclair superintendent of the Saratoga Hospital and president of the association was in charge.

The luncheon was directed by Miss Gladys Hedman, dietitian and the visitors later inspected the new local hospital.

Originally scheduled to start in midsummer construction of the Contagious Disease Hospital on North Brother Island New York City will be postponed several months, according to information received by the Bronx Board of Trade from the Department of Hospitals and made public by William B. Matthews, executive secretary. Delay in demolishing buildings on the site of the proposed hospital structure is responsible for the postponement of construction work, it was explained.

The National Cancer Institute of the United States Public Health Service, after consultation with state departments of health has recommended that about 8½ grams of government-owned radium be lent to various hospitals in twenty states and the Territory of Hawaii.

The Cancer Institute bases its approval for the loan of the radium upon the need for radium upon the staff and upon the adequacy of facilities for radium treatment. Approximately 1,300 milligrams of radium have not yet been allotted and applications for loans will continue to be considered.

Institutions receiving the government-owned radium have to agree to make no charges to the patients for its use and to meet high standards regarding the personnel.

### A Hospital Prayer

Located in the metropolis of Pennsylvania's anthracite region surmounted by its mountain ranges, and founded by practical philanthropists among a kindly people is Reading Hospital which has served its community for more than fifty years in every way that a good hospital can serve, says *Hospitals* (Chicago). This is the Prayer of Reading Hospital.

### Our Prayer

May the tall tower surmounting these great buildings be a call to all the people to 'come and use your hospital.

As suffering levels all ranks so distinction vanishes on the bed of pain.

May the blessings of this institution descend like gentle rain on the afflicted of the community.

Let unselfish and earnest devotion to duty be our aim every minute, night and day.

True hospital service recognizes no social distinctions. The sole purpose is to still the cry of agony and ease the pangs of pain.

Let the sufferer enter with hope and leave with health. That is medicine's greatest wealth.

Giving the benefit of knowledge as far as known is our duty extending that knowledge a little further is our hope.

With clear eye and clean heart may we meet the needs which prompted this great community to sacrifice that this haven could be established.

### Theme Songs for Hospital People

SUPERINTENDENT 'No No a Thousand Times No!'

SOCIAL SERVICE WORKER 'Nobody Knows the Trouble I've Seen'

DIETITIAN 'Yes, We Have No Bananas'

ANESTHETIST 'Good Night, Sweetheart'

DISCHARGED PATIENT 'There's No Place Like Home'

RESIDENT STAFF 'The Stein Song'

CASHIER 'I Can't Give You Anything But Love, Baby'

—Modern Hospital

Lots of hospitals conduct public tours of the institution. Recently the editor of *The Modern Hospital* ran into a new twist for this idea.

Dr John Gorrell of Blodgett Memorial Hospital, Grand Rapids, Michigan, believes that if hospital tours are interesting and valuable to the public they can be just as interesting and even more valuable to members of the hospital's own staff. So Dr Gorrell and his assistant, Ronald Yaw, are taking the entire personnel through the institution in groups of from four to eight.

at a time. The student nurses are scheduled for trips within two months of the opening of the term. It is surprising how many hospital employees are unfamiliar with some aspects of

the institution's departments and their work.

The tour is carefully planned, and in each department some interesting piece of equipment is actually demonstrated.

### Improvements

A movement is on for a city hospital in the southern section of Queens County, backed by the Queens Southside Allied Association

. . .

Glenridge Sanitarium, the 150-bed Schenectady County Tuberculosis hospital located five and one-half miles north of Schenectady on Glenridge Road, has recently installed a powerful new x-ray unit which, together with the institution's present x-ray equipment, provides the staff with diagnostic facilities comparable to that available at the largest sanitariums

With the installation of new apparatus under a \$4,000 project for equipment and renovation of its x-ray department, Corning Hospital officials declare that for x-ray work the institution ranks with the best in the Southern Tier

. . .

The McCarty Hospital at Ballston Spa has added a large annex

. . .

The Stevens Hospital at Granville contemplates extensive remodeling and renovation.

### HOW SOCIALIZED MEDICINE WORKS

"How does socialized medicine work? I had a friend who made a personal investigation of it in England. He visited a panel doctor, as they are called, a doctor paid by the state who has 100 or 200 families under his care. After lunch the doctor invited him into his office. There were 21 patients there.

" 'How many of you have a cough?' asked the doctor.

Seven said they had.

" 'How long have you had it?' the first patient was asked.

" 'About a week.'

" 'Then take this, a teaspoonful every hour,' said the doctor as he handed him a bottle. The other six also were given a bottle each.

" 'How many of you have rheumatism?'

"Another group stepped out and after a question or two were given medicine.

"The doctor took care of all 21 patients in about an hour and that's the way socialized medicine works.

"No such doctor has any great interest in his patients and no interest in research and study that would advance medical science.

"To have socialized medicine in this country it is estimated about 5 per cent of every man's wages would have to be taken out of his pay envelope. That would mean about \$100,000,000 a year.

"I said to Senator Wagner, 'Do you realize it would cost our own state of New York about \$67,000,000 a year, and we are having trouble balancing the budget now?'

" 'We could get it,' the Senator said.

"We doctors would rather starve than to lose our liberty of action, and yours, and to see our profession brought down to a sordid level where somebody in Washington will tell us what patients we must serve and how. We, like you, prefer to be masters in our own house."

—Arthur W. Booth, M.D., Address before *Elmira Kiwanis Club*

### NEW YORK COUNTIES AND CITIES WIN HEALTH AWARDS

Two counties and four cities of New York State have received awards in the 1938 city and rural health-conservation contests sponsored by the United States Chamber of Commerce in cooperation with the American Public Health Association.

Cattaraugus County won first award and Cortland County an award of merit among the competing rural health units in the northeastern division of the United States while Buffalo and Yonkers received awards of merit among cities

of their respective population groups throughout the country. Schenectady and Syracuse, both of which have won first awards on two or more previous occasions, received special awards for having maintained their high standards in 1938.

*Health News*, organ of the State Department of Health, remarks that "Awards are based on statements furnished by the community, often the health officer, on standard questionnaire forms which apparently are accepted at their face value."

# Across the Desk

## The Incubator Doctor

ONE of the financial casualties of the World's Fair it seems, is the 71 year-old doctor who conducts the Baby Incubator exhibit. For over forty years he has had his life saving show at the great fairs and on the boardwalk at Coney Island and Atlantic City and has made a comfortable living out of it only to meet disaster in the slump that struck the enterprise on Flushing meadows.

He has lost most of his \$80 000 investment at the Fair, we are told in the *New York World Telegram* and it has upset his plan to retire and leave his equipment and an endowment to New York City for a baby incubator clinic. He told the reporter that this is his first financial failure after 22 expositions and it has just about cleaned him out and he's very weary.

### "Everything Strictly Ethical"

Dr. Martin A. Couney resents the imputation that he is merely a showman, even if he does charge admission to his exhibit of prematurely born babies, or 'preemies,' as he calls them. He invariably charges the parents nothing. "All my life I have been making propaganda for the proper care of preemies, who in other times were allowed to die," he said to a writer for the *New Yorker* as quoted in the September *Reader's Digest*. "Everything I do is strictly ethical," he added. "He regards his work primarily as educational," reports the *World Telegram* as do medical societies and Dr. Morris Fishbein, editor of the professionally skeptical *Journal of the American Medical Association* who declared it is as instructive as the Hall of Man, the medical profession's own exhibit at the Fair.

Dr. Couney is a native of Alsace and studied medicine in Berlin and Leipzig then went to Paris to do graduate work with Pierre Constant Budin, who was Europe's leader in saving premature babies. It was Budin and his aides who devised a way to feed prematures too weak to take milk from breast or bottle, by inserting a long flexible tube down the throat into the stomach, a delicate feat like threading a needle with a life at stake.

### How the Exhibits Started

It was Professor Budin, too who saw in the Berlin Exposition of 1890 a chance to bring the conservation of prematures to the public and he happened to hit upon Couney then only 28 to demonstrate his discoveries. The young doctor set up a booth with six incubators, and a Berlin hospital was glad to loan him six preemies, as in those days they were expected to die any way. Couney called his exhibit *Kinderbrutten stall*, or child hatchery.

No question of the ethics of advertising ever came up for no advertising was needed. The 'hatchery' was celebrated in comic songs and music hall gags even before the Exposition opened, says the *New Yorker* article, so that from the first day the pavilion was jammed. It was intended as a serious scientific demonstration, but it outdrew the Congo Village.

The main point, however was that it was a

medical success. The young doctor graduated several batches of preemies that summer brought each baby to a weight of five pounds or more gave it a good start as a normal infant, and did not lose one! News of the 'hatchery' spread to other lands, and Dr. Couney was asked to present a similar exhibit in London. Success there convinced him of the usefulness of interesting the public in the care of prematures, and he has since participated in 20 expositions.

### The "Hatchery" Comes to America

Leading British pediatricians, we are informed gave Dr. Couney letters of commendation when he came to America in 1898 to exhibit his 'hatchery' at the Omaha Trans-Mississippi Exposition. In 1901 he was 'hatching' at the Buffalo Pan American and then he decided to stay in a land that seemed to have a world's fair every summer. Between fairs, there were Atlantic City and Coney Island almost named after him.

Both kinds of success attended his exhibit at Chicago's Century of Progress. Receipts rose to \$1 600 on good days, and the show received flattering attention from the medical fraternity. After the Exposition Chicago set up a free premature station.

How does Dr. Couney procure his preemies? More are offered him every year than he can possibly handle, the *New Yorker* article says for few hospitals have special departments for their care. Such care, it seems, may be 'hideously expensive.' One item is \$8 a day for mother's milk another \$15 a day for three shifts of nurses. Then there are the rental of incubator and hospital room, oxygen, frequent visits by the doctor and plenty of incidentals.

Plans are now on in New York City to centralize the care of prematures at the Cornell Medical Center perhaps within a year and Dr. Couney told the *New Yorker* scribe last May that then he would retire, feeling that he had made enough propaganda for preemies. Now however it seems that the good doctor's resolution was itself premature, and he has it on his hands, another 'preemie' to nurse through the winter in the hope that success next year may give it life.

### Saved for Bullets?

About 8 000 preemies have been under his care since that first exhibit in Berlin and of these he has kept alive about 6,500. Now war is here, and if we go in, he remarked to the *World Telegram* reporter God knows how many hundreds of my kiddies will be crippled or die on the battlefields. It wouldn't be human, he added not to feel discouraged and wonder what the hell good there is in all my work. A more cheering side of it is the eleven high school commencements he was invited to attend this year to see some of his preemies graduate, and the sight he had of two of his girls graduating as nurses, marching down the aisle in their uniforms wearing corsages and

carrying their diplomas "When I think of that, I feel much better then," he said

In the exhibit at the World's Fair are 16 babies, all girls, as it happens, for "they seem to come in cycles of sex," according to the doctor. The smallest is one pound, four and a half ounces. Infants over three and a quarter pounds are refused, we are told, even though most hospitals consider those under five pounds premature. As the doctor put it, humorously "At five pounds they're big enough to keep in a wash basket with hot-water bottles. At that size they'd knock on the incubator glass when they wanted anything."

#### Fashion Notes from the Preemie-Donnas

Some interesting bits of information are passed on to us in the *World-Telegram* story, written by Frederick Woltman. For instance, their prebaby clothes come from several convents on the outskirts of Paris, handmade by lay sisters. The inside dress is fleece-lined piqué. Then there's the linen skirt, diaper, and wrapper, folded up at the feet to eliminate a draft.

Their advantage, according to the doctor, whose linen bill is \$3,000, lies in their softness and simplicity. Only one pin is necessary.

Mother's milk costs \$200 a week. There are two wet nurses living on the premises. The weekly laundry bill comes to around \$100.

During forty-one years in America, 18 sets of triplets and 300 sets of twins have survived the Couney incubators. None turned out to be geniuses, idiots, or criminals, says the doctor happily.

A nitwit once protested a blue-ribbon premature (a male) with a pink-ribboned female, in the same incubator. Youngsters often ask their parents to "buy me one." The asinine questions, the doctor says, are from grownups. Such as "Where do you get the eggs?" "Are they all from Chicago?" "How do they live in the gas stoves?"

And "What do you do with them in the winter?"

To this he makes a point of answering "Keep them in cold storage."

Parents are given passes to the Fair and they can come in day or night to inspect their babies, since there's a twenty-four-hour staff of nurses on hand. But they're forbidden to handle their progeny and advised against identifying them to other visitors. The babies' names are known only to Dr. Couney and his head nurse, who has been with him forty-one years.

Dr. Couney has been on twenty-four-hour-a-day duty. He doesn't know where General Motors lies from the Amusement Area, for a case of cyanosis, when babies turn black, or mucus accumulation, or a rupture or other difficulties get him up two or three times a week.

"Without attention," he points out, "they might be dead in two minutes."

#### Brother Physicians Take Him Seriously

Of more medical interest is the fact that while the smallest preemie the doctor has under his care weighs one pound, four and a half ounces the smallest reported in medical literature to have survived weighed only half an ounce less. Smaller ones, fantastically tiny, pop up from time to time in newspaper reports. These rouse the doctor's ire. He once checked up on a press-service report of a "nine-ounce baby" and found it weighed two and a half pounds. So the doctor told the writer for the *New Yorker*, Mr. A. J. Liebling, who notes that "brother physicians take Dr. Couney more seriously than do the laymen who pay their two bits to gawk at his protégés." He added that doctors understand the technical difficulties of reconstructing, in the outside world, an environment equivalent to the mother's womb. The incubators provide only a small part of this environment. The physician's vigilance and experience are far more important than any incubator to the survival of a premature baby.

Dr. Couney employs 15 trained nurses who work in eight-hour shifts, and, to provide the essential supply of mother's milk of uniform quality, he engages five wet nurses each season who live at the concession. The wet nurses eat virtually all day—good, milk-producing food. If Dr. Couney catches one having a hot dog outside, he fires her.

Before being fed to the babies, the wet nurses' milk is boiled to get rid of excess butterfat, and diluted according to a formula which differs for each patient. A preemie, if all goes well, should gain about a pound every three weeks. The summer is a long competition among the nurses, with weekly prizes of stockings for those whose charges gain the most weight.

At the close of the exhibition season Dr. Couney returns whatever prematures he has on hand to their homes as soon as they reach standard weight, he refuses to accept any more until the next spring. Other physicians have frequently wished that he operated the year round, for the benefit of winter preemies. "But I work hard enough in the season," he says. "Twenty-four hours a day in attendance."

Dr. Couney's charges are invariably anonymous. To prevent their getting mixed, each wears a little identification necklace. Grown persons sometimes turn up at the concession, proudly showing these necklaces as proof that they were once Couney preemies. They get in free. A few seem disappointed because the Doctor doesn't recognize them.

W S W

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An Ohio doctor was 104 years old on July 6 and had a birthday party. He is Dr. William E. Thomson, of Bethel. When the reporters asked him how he managed to live so long, he replied "By not dying."

Doctor—"Merciful heavens! Who on earth stuffed that towel in the patient's mouth?"

Patient's husband—"I did, doctor. You said the main thing was to keep her quiet."—*Neb State Med Jour*

# Books

Books for review should be sent to the Book Review Department at 1313 Bedford Avenue, Brooklyn N Y. Acknowledgment of receipt will be made in these columns and deemed sufficient notification. Selection for review will be based on merit and the interest to our readers.

## REVIEWED

**Pulmonary Tuberculosis in Practice. A Modern Conception.** By R. C. Wingfield B.A. Octavo of 122 pages illustrated. Baltimore William Wood & Co 1937 Cloth \$2.50

Many years of experience coupled with a growing sense of disappointment have stimulated the author to attempt a monograph that would give to the general practitioner a suitable and reliable guide to problems in pulmonary tuberculosis as they arise in everyday practice. He has divided the course of chronic pulmonary tuberculosis into twelve stages, and he feels the patient will be in one of these when he presents himself for observation, diagnosis, or treatment.

The book is divided into two parts. In the first half is traced the life history of the tuberculous lesion in the lung from its initial appearance through all its possible stages of development to its end effect. The pathology and probable cause of each stage is described the manner in which the lesion passes from one stage to another and possible reasons for one path over another. These descriptions are supplemented with a large partially colored diagram.

In the second half of the book each stage of the disease is described from the viewpoint of clinical signs, methods of diagnosis, x-ray appearance, and clinical course. This is followed by suggested detailed methods of treatment as they concern the general practitioner.

The book is well written and the text well illustrated with x ray reproductions, which are further amplified by black and white-labeled sketches detailing x ray findings. It is a distinctly worth while volume for a novel but a concise practical approach to routine problems of pulmonary tuberculosis in general practice.

HERMAN E WIRTH

**Die Therapie der Thrombose.** By Dr Ernst Friedländer Octavo of 117 pages illustrated. Leipzig und Wien, Franz Deuticke 1938 Paper R.M. 6.00

The author claims that the average course of thrombophlebitis as to patient and year has been decreased from 75 days to 6 days only and that this result was accomplished by his methods of treating the disease as described in this book. There are plenty of theories to support the author's particular ideas, i.e. that the increasing frequency of phlebitis migrans and endangitis obliterans is due to the increased inhalation of CO on account of the exhaust gas of automobiles and other causes. In cases of thrombosis consistency of moving the diseased extremity is advocated to prevent an embolic possibility, further the application of leeches is advised and a detailed description of their administration is given. All the modern methods of treatment are duly mentioned. The concluding chapter advocates the setting up of special departments in hospitals and clinics for treatment of cases of thrombosis and embolism.

MAX G BERLINER

**The Physician's Business. Practical and Economic Aspects of Medicine.** By George D Wolf M.D. Octavo of 384 pages, illustrated Philadelphia J B Lippincott Co 1938 Cloth \$5.00

In this volume Dr Wolf presents many facts and ideas concerning the practice of medicine, which a physician would need many years and a variety of experiences to obtain for himself. He advises the medical student on his choice of a hospital in which to serve his internship and the young physician or intern as to specialization. He describes opportunities in fields of medicine other than private practice. He advises the doctor with regard to ethics, professional contacts, and medical societies. He also advises the doctor on how to select a location for his office, how to equip the office, how to keep records, including case histories, and how to act when in the office. There is a chapter on emergency treatment and one explaining the various types of insurance which the physician might need. The work ends with an impartial description of the various health insurance and socialized medicine plans.

This work should be of value to the medical student intern, and the physician starting practice.

CHARLES F MCCARTY

**Internships and Residencies in New York City, 1934-1937. Their Place in Medical Education.** Report by the New York Committee on the Study of Hospital Internships and Residencies Jean A Curran M.D. Executive Secretary Octavo of 492 pages New York, Commonwealth Fund 1938 Cloth \$2.50

This is a survey of internships and residencies of hospitals of the New York metropolitan area. Its object is to give some idea as to the adequacy of training given to interns and residents with an evaluation of training for general practice and entrance of residents into the specialties.

There are 1760 internships and residencies offered in 77 hospitals approved by the Council on Medical Education of the A.M.A. which is over one-sixth of those offered in the entire country. Since no such study has been made before, it is very opportune to have this survey. The task of covering such a large field has led to the accumulation of many important and valuable facts from which all who are interested in this problem should profit.

Much credit must go to Dr Jean Alonzo Curran, now Dean of Long Island College of Medicine for his thorough and sympathetic fact finding. As an example he states 'Instead of part of the free time being used wisely for study and extra sleep it has been devoted to too much social activity. Not infrequently an intern has been more tired on the morning after his evening of rest than after a night on call. Again Dr Curran shows remarkable insight into the work

ings of a hospital in the following passage "An average census of ten to fifteen patients to a house staff member may rise to twenty or thirty patients, exceeding the limits of efficient patient care"

The book contains helpful suggestions on how to improve and help intern instructions, with no dogmatic conclusions but full of passages pointing the way. It should be read by all hospital executives and all others who come in contact with the training of interns and residents. Last but not least, the interns and residents would profit much by reading it.

It is our hope that the New York Committee on the Study of Hospital Internship and Residencies will continue this work with Dr. Jean Alonzo Curran in the same capacity.

JOSEPH TENOPYR

**Gonorrhea in the Male and Female** A Book for Practitioners By P. S. Pelouze, M.D. Third edition. Octavo of 489 pages, illustrated. Philadelphia, W. B. Saunders Co., 1939. Cloth, \$6.

This is a decidedly worth-while book. In the first edition we had a treatise on gonorrhea, reviewing what was known of the disease with expressions of new scientific approaches for its further study, all told with a sincerity of expression and pleasant style that made it serve its purpose, which was to reawaken interest in those physicians who had neglected modern conceptions.

This third edition, entirely new and rewritten, discusses the value of new cultural methods, estrogenic hormones, sulfanilamide therapy, and the value of fever therapy. The third section is new, and consists of the discussion from a public health point of view. The attitude of the profession, the management of dispensaries, the attitude of the druggists in meeting the demands of the public for selling them drugs direct, the character of charlatans, follow up and contact finding, and the education of the public to lend their assistance to the fight are all discussed with Dr. Pelouze's ironic charm. Besides being entertaining, the book is of practical use to everyone interested in the treatment of this disease because of the excellent statements as to the detailed management of gonorrhea in all its stages and in all its complications.

J. STURDIVANT READ

**The Genuine Works of Hippocrates** Translated from the Greek by Francis Adams, LL.D. Quarto of 384 pages. Baltimore, Williams & Wilkins Co., 1939. Cloth, \$3.

We have in this new reprint of Hippocrates' works a more attractively printed volume made less forbidding by the absence of a long although learned preface and footnotes.

The text needs no dressing, since it presents the fruits of an extensive clinical experience by one of the most brilliant medical minds of all time in up-to-date fashion. Case histories are used in the description of disease. The most minute details in the handling of surgical problems, especially those of a traumatic or rectal nature are discussed. Indications and contraindications are given. That epilepsy before puberty and during adult life were different disorders was known to this sage.

There are hundreds of items like this scattered throughout this true medical bible which will interest, if not fascinate, all students of medicine, both general and special.

A. J. LAPOVSKY

**The Horse and Buggy Doctor** By Arthur E. Hertzler, M.D. Octavo of 322 pages, illustrated. New York, Harper & Bros., 1938. Cloth, \$2.75.

Dr. Hertzler's many books on surgical pathology and other subjects have already made his opinions and methods known to not a few readers. Forty years and more as a doctor in Kansas—most of these as a country doctor—special studies abroad in anatomy and pathology, his later years as a surgeon, teacher, and consultant, have produced a broad field of personal and professional experience which Dr. Hertzler tells about in this book. To those of us whose training has been in a modern hospital the stories of Kitchen Surgery are evidences of unusual resourcefulness and ingenuity.

The account of the removal of the large abdominal tumor by piecemeal dissection, with the patient sitting because the flat position was impossible, seemed to strike a high note in surgical skill. This case is not cited as an instance of bravado, because Dr. Hertzler prides himself on his conservatism and preaches many a sermon on "when not to operate." We can appreciate the spirit of personal accomplishment which may have prompted the doctor to tell about those cases which recovered, but his technique and ability would still have been conceded even if he had included the story of some in whom he had not been successful.

Dr. Hertzler is of course opinionated. He talks on social and marital problems, on ethics and education. He seems to approve the propaganda of the various "Boards for Specialties," but appears somewhat petty and petulant when he discusses hospital standardization. We have offered these two criticisms, but, as is evident, they are of minor importance as far as the general interest of the book is concerned. This book has been read by the laity, and enjoyed by them as the story of a doctor of idealism and of a rich experience. Our profession, too, finds much of interest and instruction in its pages.

JOSEPH RAPHAEL

**The Principles and Practice of Obstetrics** By Joseph B. DeLee, M.D. Seventh edition. Quarto of 1,211 pages, illustrated. Philadelphia, W. B. Saunders Co., 1938. Cloth, \$12.

Since the first edition of this textbook was published in 1913, it has always been one of the best. The new seventh edition is on the same high plane as the others. It is brought up to date in every respect, obsolete matter has been omitted, and new added.

The chapters on the blood chemistry of the toxemias of pregnancy, mechanism of labor, tuberculosis, heart disease, and diabetes, to mention only a few, have been thoroughly revised in the light of advancing knowledge of these subjects.

The author continues to stress conservatism and intelligent expectancy. The illustrations are clear and numerous. The text is written in a terse and pungent style, which quickly drives home the point in the reader's mind.

WILLIAM SIDNEY SMITH

**Surgical Pathology of the Diseases of the Mouth and Jaws.** By Arthur E Hertzler, M D Octavo of 248 pages, illustrated. Philadelphia, J B Lippincott Company, 1938. Cloth, \$5

Dr Hertzler's monograph on *Surgical Pathology of the Diseases of the Mouth and Jaws* is much more than a pathologic treatise. The presentation is original, critical and analytical and will be well appreciated by the pathologist the surgeon and the specialist.

In his chapter on classification of diseases of the oral cavity he states "In some cases the diagnosis is but little more than a name, notably when the diagnosis is made from a frozen section. It becomes useful only when supplemented by information the surgeon must supply for him self."

We think, with the present tendency to publicize the idea that early recognition of cancer can result in a cure, it is well to quote his chapter on cancer of the lips which is a comparatively slow growing malignant tumor. In the present commendable campaign against cancer stress is laid on the importance of early diagnosis. The theoretical importance of this cannot be gainsaid but in our wage for vigilance we unconsciously imply that if the diagnosis were made early enough cure would be regularly achieved. This also is theoretically correct. We urge frequent pelvic examinations during the cancer age so that malignant lesions may be discovered early which they rarely are, and mammary glands are becoming as much the object of attention at the end of mature life as they are in the beginning. All this is for the purpose of recognizing malignancy in its beginning.

The text and photographs are so complete that on reviewing the text one can readily visualize the author individually demonstrating his cases and the pathologic lesions.

H M FEINBLATT

**Spinal Anesthesia.** By Louls H Maxson M.D. Octavo of 409 pages illustrated. Philadelphia, J B Lippincott Company 1938. Cloth, \$8.50

It is too bad that the author's untimely death so soon after the publication of his book should deprive him of the satisfaction of a work well done. For truly this book is a distinct addition to the literature on spinal anesthesia in this country. It should be in the library of every anesthetist and surgeon. The orderly arrangement of its contents bespeaks one who is well acquainted with the subject. The anatomic considerations of the spinal cord are especially enlightening and are well placed at the beginning of the book. The chapter on physical factors, with its accompanying drawings and diagrams, has greatly helped in clarifying many of the poorly understood features of subarachnoid analgesia. Complications and idiosyncrasies are well explained, and the chapter devoted to Advantages and Disadvantages clearly outlines these prerequisites to properly administered anesthesia.

The author naturally leans toward the use of spinal anesthesia and varies occasionally from well founded contraindications to its use. The experiences of Wayne Babcock (who wrote the foreword) have taken fruitful roots in the au-

thor's work and seem to exert, perhaps too much influence upon him. However he does give a generous bow to other forms and modes of anesthesia for which due credit should be given, coming as it does, from such a spinal enthusiast. Altogether it is a work well done.

F PAUL ANSBRO

**Recent Advances in Medicine. Clinical, Laboratory, Therapeutic.** By G E Beaumont, M A and E C. Dodds, M V O Ninth edition Octavo of 431 pages, illustrated. Philadelphia P Blakiston's Son & Co 1939. Cloth \$5

In the revision of this excellent work, the authors make many additions and alterations. Sulfanilamide drugs, mandelic acid vitamins, and diuretic agents receive attention. Chapters follow on diabetes and the kidneys, stomach, and other organs. Many changes made in the section on cardiovascular diseases include a new series of electrocardiograms. Chapters on the sex hormones and anemias bring these subjects up to date, and the final chapter deals with blood and urine analysis. The combining of clinical laboratory and therapeutic data in one volume adds to the value of a very good book.

WILLIAM E McCOLLOX

**The Medical Press and Circular, 1839-1939 A Hundred Years in the Life of a Medical Journal.** By Robert J Rowlette, M D Quarto of 127 pages. London W C 2 The Medical Press and Circular 8 Henrietta Street, 1939. Cloth

One of the most promising but as yet comparatively untitled fields of medical history is the study of medical journalism. Any contribution to this subject is, therefore, extremely welcome and it is consequently a great pleasure to welcome the appearance of a history of the *Medical Press and Circular*. This journal originated in Ireland as the *Dublin Medical Press* with the purpose of reforming conditions in medicine and public health. The motto nailed to its masthead, *Salus Populi Suprema Lex* is expressive of this intent and indicates the place of the journal in the reform movements which swept the British Isles during the thirties, forties, and fifties of the past century.

The first number of the *Dublin Medical Press* appeared in 1839. It was not until 1852 that the *Medical Circular* with which the earlier journal was to merge, was founded in London. The early history of the *Medical Press* was a stormy one, and it was frequently involved in violent controversies. It is interesting to note that fee splitting in existence even at that period under the designation going snags, was subjected to vitriolic denunciation in its columns. In 1866 the two journals were combined under the title of *Dublin Medical Press and Circular* but Dublin was soon dropped, and in time it became an English rather than an Irish publication.

In this volume Dr Rowlette has presented us with an interesting account of the now centenary medical journal and its position in relation to contemporary events throughout this period. The book beautifully made and printed is undoubtedly a worthwhile accession to the library of those interested in the development of medical journalism.

GEORGE ROSEN



# THE NEW YORK ACADEMY OF MEDICINE

## Twelfth Graduate Fortnight

October 23 to November 3, 1939

## THE ENDOCRINE GLANDS AND THEIR DISORDERS

### MORNING—ROUND TABLE CONFERENCES AT THE ACADEMY OF MEDICINE

#### Tuesday, October 24

*Chairman, WALTER TIMME*

- 10 30-11 15 The pituitary gland  
*Leader, J B COLLIP*
- 11 15-12 00 Therapeutic application of female sex hormones  
*Leader, ELMER L SEVRINGHAUS*

#### Friday, October 27

*Chairman, EUGENE H POOL*

- 10 30-11 15 Surgical treatment of hyperthyroidism  
*Leader, FRANK H LAHEY*
- 11 15-12 00 Disorders of the pituitary gland  
*Leader, IRVING H PARDEE*

#### Tuesday, October 31

*Chairman, GEORGE F CAHILL*

- 10 30-11 15 The adrenal cortex  
*Leader, GEORGE W THORN*
- 11 15-12 00 Relation of diabetes to endocrine system  
*Leader, R T WOODYATT*

#### Friday, November 3

*Chairman, GEORGE GRAY WARD*

- 10 30-11 15 Therapeutic application of male sex hormones  
*Leader, CARL R MOORE*
- 11 15-12 00 The etiology and treatment of obesity  
*Leader, R G HOSKINS*

### AFTERNOON—HOSPITAL CLINICS

2 00 to 5 00 p m.

#### First Week

- Monday, October 23*
- 1 Babies  
2 Bellevue  
3 Beth Israel
- Tuesday, October 24*
- 4 Memorial  
5 New York
- Wednesday, October 25*
- 6 Montefiore  
7 Post-Graduate  
8 Mount Sinai  
9 New York
- Thursday, October 26*
- 10 Lenox Hill  
11 Mount Sinai
- Friday, October 27*
- 12 Bellevue  
13 Flower and Fifth Avenue  
14 Neurological and Presbyterian
- Tuesday, October 31*
- 15 Montefiore  
16 St. Luke's

#### Second Week

- Wednesday, November 1*
- 17 Joint Diseases  
18 Lenox Hill
- Thursday, November 2*
- 19 Morrisania  
20 Post-Graduate
- Friday, November 3*
- 21 Sloane  
22 Woman's

Many cases will be shown at each clinic.

### EVENING SESSIONS—AT THE ACADEMY OF MEDICINE—8 30 O'CLOCK

#### Monday Evening, October 23

This evening's program is presented jointly with  
The Medical Society of the County of New York

- I Address of Welcome  
MALCOLM GOODRIDGE, President, The New York Academy of Medicine
- II Scientific Program
- 1 Historical sketch of the development of endocrinology  
H M EVANS, Director Institute of Experimental Biology, University of California
- 2 Physiology of anterior lobe of pituitary gland  
J B COLLIP, Professor of Biochemistry, McGill University

#### Tuesday Evening, October 24

- 1 Pituitary hypothalamic syndromes  
LEOPOLD LICHTWITZ, Chief, Medical Division, Montefiore Hospital
- 2 Hypopituitarism and hyperpituitarism  
LEO M DAVIDOFF, Chief of Department of Surgery, Jewish Hospital of Brooklyn
- 3 Therapeutic application of female sex hormones  
ELMER L SEVRINGHAUS, Professor of Medicine, University of Wisconsin

#### Wednesday Evening, October 25

- 1 Physiology and principal inter-relations of the thyroid  
DAVID MARINE, Director of Laboratories, Montefiore Hospital
- 2 Hypothyroidism  
J H MEANS, Jackson Professor of Clinical Medicine, Harvard University

#### Thursday Evening, October 26

- 1 Medical aspects of hyperthyroidism  
HAROLD THOMAS HYMAN, Associate Physician, The Mount Sinai Hospital
- 2 Surgical treatment of hyperthyroidism and other diseases of the thyroid gland  
FRANK H LAHEY, Boston

#### Friday Evening, October 27

- 1 The adrenal medulla  
WALTER B CANNON, Professor of Physiology, Harvard University
- 2 Adrenal insufficiency  
ROBERT F LOEB, Professor of Medicine, Columbia University

#### Monday Evening, October 30

- 1 The adrenal cortex  
C N H LONG, Sterling Professor of Physiological Chemistry, Yale University
- 2 The Cushing syndrome. Neoplasms of the adrenal gland  
B S OPPENHEIMER, Physician to The Mount Sinai Hospital
- 3 Overfunction of the adrenal cortex  
HUGH H YOUNG, Professor of Urology, Brady Institute, Johns Hopkins Hospital

#### Tuesday Evening, October 31

- 1 Relation of diabetes to endocrine system  
R T WOODYATT, Clinical Professor of Medicine, Rush Medical College
- 2 The influence of the central nervous system upon endocrine activity  
JOHN F FULTON, Sterling Professor of Physiology, Yale University

#### Wednesday Evening, November 1

- 1 Physiology and pathology of parathyroids  
WILLIAM G MACCALLUM, Professor of Pathology, Johns Hopkins University School of Medicine
- 2 Hyperparathyroidism  
HENRY L JAFFE, Director of Laboratories, Hospital for Joint Diseases

#### Thursday Evening, November 2

- 1 Physiology of the ovaries  
PHILIP E SMITH, Professor of Anatomy, Columbia University
- 2 Physiology of testes and therapeutic application of male sex hormones  
CARL R MOORE, Professor of Zoology, University of Chicago

#### Friday Evening, November 3

- 1 Puberty, menstruation and pregnancy  
ROBERT T FRANK, Consulting Gynecologist, The Mount Sinai Hospital
- 2 Menopause  
EPHRAIM SHORR, Assistant Professor of Medicine, Cornell University Medical College
- 3 Concluding remarks  
HARRISON S MANTLAND, Chairman, Fortnight Committee

# NEW YORK STATE JOURNAL *of* MEDICINE

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## *Editorial*

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Dr James E Sadlier

Life is but a journey to the grave During his journey along this path, Dr Sadlier became an honored figure in the medical circles of our state As a delegate to the State Society, as president of the First District Branch, as both member and chairman of numerous committees, particularly the Committee on Public Relations and the Board of Trustees, and as president of the society he rendered distinguished service to organized medicine

He was a constructive thinker a fine surgeon and a loyal friend We shall long remember his contributions to our deliberations, his sage advice, and his enlightening criticism as well as his genial personality

His affiliations brought him many contacts He found friends in all walks of life

We mourn his passing but are enriched by having enjoyed close association with him We shall long remember him His whole medical life was an inspiration and an example

### First Aid at Home

Most Americans have a profound respect for scientific methods They are also incorrigible gadgeteers For both reasons there has been a trend to overhospitalization in recent years The institutional equipment attracts even when it is unnecessary

Many physicians who consider this objectionable have been influenced primarily by economic considerations Since institutional facilities are limited and costly to expand, they believe hospital care should be reserved for people who really need it Their point of view finds support in recent years' experience with home medical relief, showing that many diseases are treated just

as efficiently and at far less cost in the physician's office and the patient's home

Today unexpected confirmation of the argument for home and office treatment comes from the war-ridden countries of Europe. In London first-aid posts have been set up with the aid of the British Medical Association "with the intention of protecting casualty hospitals from a rush of minor and ambulant cases and of providing early treatment in districts where the hospital is some distance away," to quote from the *J A M A*

In war or in peace, it seems sound policy to make the offices of private practitioners first-aid centers for their towns or neighborhoods. Even in large cities it is a waste to summon an ambulance for an injury which could be treated just as effectively by a nearby private practitioner. Entirely apart from military necessity, the development of the private practitioner's office as a local first-aid station would materially relieve the strain on our hospitals and lessen the medical expense attendant upon slight accidents.

### Death-Dealing Ignorance

In the face of cumulative evidence one would expect even partially literate persons to know that a scientific medical education is indispensable equipment for the treatment of disease. Yet educated individuals permit themselves to be diverted from proper treatment of their maladies and submit to the erratic ministrations of quacks instead.

Last year in London, according to a case reported in the *J A M A*, a schoolteacher abandoned insulin and the diet recommended by her physician for a regime of orange juice prescribed by an osteopath. The amazing thing is that she had been progressing satisfactorily and living a normal life under the care of her regular medical adviser. Unfortunately, she paid for her desertion of orthodox therapy with her life.

Recently in our own state of Washington another diabetic sacrificed his life to unscientific treatment methods. Here a "drugless healer," assuming the role of medical man, persuaded his victim to give up the use of insulin and the limited-carbohydrate diet prescribed by a regular physician.

In both these cases the courts found the irresponsible "healers" who counseled the abandonment of proper treatment guilty of manslaughter. When it comes to the treatment of disease, ignorance ranks as a lethal weapon with poison, or a knife, or a gun. A person who induces another to discontinue the use of a necessary drug threatens the life of the other as surely as if he forcibly withheld the essential medicine.

The decision of the courts in these cases will satisfy all who believe, as intelligent persons must, that the treatment of disease by unqualified persons is a crime even in the absence of prohibitory statutes. Unfortunately, manslaughter will continue to be committed upon the unwary sick by untrained sectarian healers as long as the latter "are permitted" (in the words of the *J A M A*) "either by sanction of law or by toleration to assume responsibility for the treatment of sick human beings."

### The Mess of Medical Literature

This is the title of an editorial in the *Lancet*<sup>1</sup> of August 5, 1939. It was prompted by the mass of correspondence received by that Journal concerning the difficulties encountered by medical writers and libraries in obtaining access to all that has been written on a given subject. Completeness is furnished by no presently published index of medical literature nor can it be, despite the magnificent job done by the *Quarterly Cumulative Index*.

For one to say that fully 75 per cent of the papers published in medical periodicals should never have been permitted to pass an editorial desk merely adds emphasis to the title of this editorial, but it does not solve the problem of how to curtail the voluminousness of what we physicians must read. The suggestions made by the *Lancet* to establish a control over the amount of literature, to ensure complete indexing and to secure competent and adequate abstracting service will only partially serve to get us out of this "Mess of Medical Literature."

We feel that there are several factors which will help the doctor to separate the wheat from the chaff. All papers read before established scientific organizations, where the text has been thoroughly discussed, should be published together with the discussion. Such writings have been given the benefit of careful scrutiny and rarely need editorial supervision. Contributions, the work of which has been sponsored by an accredited department in a hospital or university, should also be given publication. The writings of recognized authorities in the respective fields of medicine, when submitted to a medical editor, can be accepted usually without question. But the enormous number of periodicals which publishers place before the profession must be filled with so called scientific contributions, and here is where the trouble lies. We are cloyed with printed pages based upon the work of others than the author. Where the *Lancet* appeals for a competent medical abstracting service in the English language, we appeal for less—but more com-

<sup>1</sup> *Lancet* 2: No. 6 321 (Aug. 5) 1939

prehensive—periodicals, and keen editorial supervision. This does not mean to imply that an observation of importance by an individual will not be given an audience. On the contrary, such a notation will immediately stand out among the plethora of articles written just because of the urge to write something. By all means, let something be done about this “mess of medical literature.”

## Irradiation for Gas Gangrene

The mortality from gas gangrene is still high. Callander, Haim, and Maximov,<sup>1</sup> among others who report on the death rate caused by the clostridia, found it to be 51 per cent in civilian practice. The use of the antiserums in conjunction with surgery has been attended with considerable success but it would appear that roentgen treatment affords an even better prognosis.

Kelly and his associates<sup>2</sup> have employed this form of treatment in 143 cases and state that they have achieved results which surpassed by far those obtained with antiserum, débridement, and amputation. They consider roentgen therapy a specific and set forth the opinion that if promptly employed within the first twenty-four hours, recovery can be expected in all instances. Sewell<sup>3</sup> feels that it is to be regretted that the general surgical literature has not yielded more information on the value of irradiation in gas gangrene since most roentgenologists are well informed of its merits in this disease. Since he has employed this form of therapy, in conjunction with sulfanilamide, he feels that this type of infection can be controlled, and frequently cured without resort to surgery. Cases which previously would have been submitted to immediate surgery can, under this regimen, be nursed by suitable dietary and supportive measures to a stage where, if amputation finally must be done, the element of shock will be reduced to a minimum, and the extent of the surgery be limited.

This brings up the question of prophylaxis. Would it be advisable to irradiate all arteriosclerotic and diabetic gangrenous areas before surgery is employed, as well as to use it in all deeply lacerated wounds and compound fractures? Finally, in time of war, where the Welch infection is much more common because of the introduction into wounds of anaerobes from mud, contaminated missiles, and sometimes from feces, consideration should be given toward making it feasible to institute prompt administration of roentgen therapy to all wounded. This should be done as near the front as the military position makes possible.

<sup>1</sup> Callander C L, Haim A, and Maximov A. *Am J Surg* 42: 811 (1938).

<sup>2</sup> Kelly J F, Dowell A, Russum B C, and Colien F B. *Radiology* 31: 608 (1938).

<sup>3</sup> Sewell R L. *Surgery* 6: 221 (Aug.) 1939.

## Current Comment

'Medicine must once again prepare to shoulder its almost superhuman obligation of mercy among a people seemingly becoming day by day more merciless

Aside from the dispensation of mercy which it must and will perform as always, Medicine must also, unfortunately, go to war in this neutral country. It must go to war for the preservation of its basic philosophy and structure.

The preliminary political steps have been taken already by propaganda and the 'threat of force' to seize the property and persons of American medicine. Government acquisition of these medical resources will probably be urged as a primary defense measure. And if the spirit of the Administration for the emergency is to be honesty let us be no less honest with ourselves and with the American people. Among the first casualties of the present European war may be the independent institution of American medicine unless!—L. D. R. writing in the October issue of the *Westchester Medical Bulletin*

'We should be mindful of the fact that the greatest advancement in the science of medicine, that of the past century has taken place in the period characterized by the greatest human liberty and freedom from political restraint. In no other field has the necessity for free individual initiative been more clearly demonstrated than in the science of medicine. It is of the utmost importance that every thing be done to preserve those natural incentives to individual accomplishments. Compulsion and the lack of natural rewards for individual improvement, such as must prevail in any political system, cannot fail to have a deleterious effect upon all individual effort. Socialized medicine would of necessity and because of the manner in which it must be operated tend to freeze the present state of medical knowledge and check advancement.'—Quoting the Hon. F. C. Smith,

of Ohio, in the *Cleveland Academy of Medicine Bulletin* of recent date

Whether physicians appreciate it or not, state medical societies and the American Medical Association represent distinguished institutions in the public mind. Those of the public who have been rather keen observants in the past look to these institutions to speak the voice of medicine in the true interest of the public health when questions of major concern in the field of health arise.

I am just wondering whether the public will be confused in future thinking by hearing from four or five voices. It has happened in labor. I hope that it does not happen in medicine.

'If physicians divide and subdivide the voice of medicine, they will be doing the public a notable disservice, whatever may be their motives.—A clergyman commenting recently in the *Wisconsin Medical Journal*

The hot air season indoors begins anew. But our fervent prayer, this New Deal Thanksgiving, will be for surcease from a recurrent plague of public forums most of which, in our experience, have only served to confound the issues, confuse the honest listeners, exfoliate the experts, incite the rabble and in general, disturb the peace!—According to 'S. Q. Lapius' in the *Westchester Medical Bulletin* a short time ago

Is it possible that the Administration, shying from its obvious responsibility, is seeking to divert public attention from its derelictions by making a grandstand play against an organization of individual medical practitioners? Is legislation intended for the control of the big fellows to be used instead for the harassment of a lot of little fellows?

The American Medical Association is essentially a labor union—a union of

workers in the medical field Why does the Administration persist in gestures of displeasure against it, while throwing around labor the protection of additional legislation? How consistent is it to favor the closed shop in industry and to insist on the open shop in medicine?

"Is Washington so scared by the massed votes of industrial labor that it extends carte blanche to its leaders, while it denies to doctors of medicine their traditional right to discipline their own profession?"

"Is the great Federal Government so awed by the massed missions of Wall Street that it must shirk its duty to curb wealth, the while hiding its neglect by attacking a mythical 'medical trust'?"

"If massed power, whether of money or men, is to determine hereafter the course of justice, then Freedom has become a mockery and Democracy, despotism"—A scathing bit of comment in regard to "The Persecution of the A M A" to be found in the August 17 issue of the *N A R D Journal*

## PROGRAM FOR THE CONFERENCE ON CONVALESCENT CARE

at The New York Academy of Medicine, November 9 and 10, 1939

### I (a) MEDICAL ROUND TABLE—November 9, 9 15 A M, Morning and Afternoon Sessions

#### A *The Physiology and Psychology of Convalescence*

- (1) The consequences of disease processes and the need of readjustment of the nutritional, endocrinological, emotional, and other homeostatic processes with particular reference to age and sex, O H PERRY PEPPER, M D, Philadelphia
- (2) The relation of chronic disease to convalescence  
Presented by ERNST P BOAS, M D

#### B *Results of Recent Research in Nutrition with Particular Reference to the Convalescent State* Presented by H D KRUSE, M D

#### C *Institutional Convalescent Care for the Various Types of Patients*

- (1) Medical Patients
  - a Respiratory, RUSSELL L CECIL, M D
  - b Alimentary (gallbladder, liver, peptic ulcer, etc.), HOWARD F SHATTUCK, M D
  - c Renal, Urinary, WILLIAM S MCCANN, M D, Rochester, New York
  - d Cardiovascular, ROBERT L LEVI, M D
- (2) Surgical Patients
  - a General surgery and gynecology, I S RAVDIN, M D, Philadelphia, Pa
  - b Goiter operations, RALPH COLP, M D
  - c Cancer, WILLIAM P HEALY, M D
  - d Orthopedic, M BECKETT HOWORTH, M D
  - e Obstetric, WILLIAM E STUDDIFORD, M D
- (3) Pediatric Patients, WALDO E NELSON, M D, Cincinnati, Ohio

### (4) Old Age Patients, LEWELLYS F BARKER, M D, Baltimore, Md

### I (b) MEDICAL ROUND TABLE (continued) November 10, 9 15 A M, Morning Session

#### A *The Psychosomatic Factors of Convalescence*

Presented by G CANBY ROBINSON, M D, Baltimore, Md

#### B *Institutional Convalescent Care for*

- (1) Neurological Patients, HUBERT S HOWE, M D
- (2) Psychiatric Patients, JAMES H WALL, M D

### II ROUND TABLE ON SOCIO-ECONOMIC ASPECTS OF CONVALESCENT CARE—November 10, 9 15 A M, Morning Session

#### A *Convalescent Case Finding*, ELIZABETH G GARDINER

#### B *Where Shall the Convalescent Patient Receive Care?*

- (1) Institutional Convalescent Care
  - a In a department of a hospital,
  - b In a convalescent home, E M BLUESTONE, M D
- (2) Convalescent Care in the Home
  - a Boarding-out method, b Care in patient's own home, HUGH CHAPLIN, M D
- (3) Convalescent Day Camp  
Presented by GEORGE H KOJAC, M D

#### C *Difficulties Experienced in Placing Certain Types of Patients in Convalescent Homes* Presented by MRS FANNY L MENDELSON

#### D *The Financing of Convalescent Care* Presented by ARTHUR W JONES

### III GENERAL MEETING—November 10 8 30 P M

Speakers—DR I OGDEN WOODRUFF  
ALFRED H SCHOELLKOPF  
DR E H L CORWIN

## THE ADVANTAGES OF SILK IN GENERAL SURGERY

DONALD GUTHRIE, M D, F.A.C.S., Sayre, Pennsylvania, M J BROWN, M D, Davenport, Iowa, and K W WOODHOUSE, M D, Sayre, Pennsylvania

**F**OLLOWING the advice of the eminent Kocher, Halsted<sup>10</sup> began to use silk instead of catgut as a suture material prior to 1883. His use of silk, therefore, preceded the introduction of rubber gloves as a part of the modern aseptic surgical technic, since Bloodgood<sup>1</sup> reports that Halsted first employed rubber gloves in 1889. He believed that even under these circumstances silk gave better results in surgical wound healing than did catgut. In spite of Halsted's observations and teachings, the widespread use of silk has come about in only comparatively recent years. Whipple<sup>27</sup> has become one of the leading proponents for the employment of silk in clean surgical cases, and the popularity of this type of suture material is due in large part to his efforts.

As a result of his experience Whipple has listed the errors to be avoided in the use of silk. These errors are (1) tight sutures, (2) mass ligatures, (3) blunt dissection, (4) careless hemostasis, (5) use of any but the finest grade of silk, (6) combination of silk and catgut, (7) use of silk in any but a sterile field, and (8) continuous sutures. He stated, in 1933, that a surgeon's percentage of clean wound healing is not only a measure of his asepsis, but is an index of his entire surgical philosophy—his knowledge of healing per primam—as well as his attitude toward his patients' welfare and toward the improvement of his art and science. Halsted felt that when a surgeon's results with silk were not as good as with catgut the failure was due to the surgeon's faulty technic rather than to the silk.

There are many reasons why silk has been abandoned since Halsted's day until recently, when experimental work has

shown its value in surgery. Duma,<sup>7</sup> working in Assaby's Clinic, found in 1903 that wounds sutured with silk apparently united, but should deep infection occur, the suppuration ceased only when the silk sutures were removed. He concluded from his studies that silk sutures, especially if braided, were either very difficult to render sterile or they were easily infected during operation. Whiteford<sup>28</sup> in 1903 theorized that a suture uniting muscles that are constantly changing position and form gradually cuts its way through until it lies loose among the tissues, and thence must become encysted or sloughed from the wound.

According to Lewis,<sup>14</sup> some surgeons simply refuse to use silk because it is non-absorbable and when buried cannot be removed. He found that many surgeons object to silk in intestinal anastomosis on the theory it may cause ulcers, especially in the jejunum after gastroenterostomy.

Whipple warned that among surgeons who are overdeliberate and have a tendency to putter, the use of silk accentuates these characteristics. Fine silk cannot be drawn as tightly as catgut without breaking, so that some experience is required before it can be successfully used. Another objection to silk is that it rapidly deteriorates with repeated boiling or wetting and drying. It is necessary to use only fresh silk.

Howes<sup>11</sup> has stated that in infected wounds, silk remains as a nidus of infection, but that catgut does not. In experimental work, however, Shambaugh and Dunphy<sup>23</sup> have shown that catgut may remain as a nidus of infection in infected wounds. It has been noted in this clinic that an infected wound that has been closed with catgut may be kept suppurating by an unabsorbed catgut



knot Thompson<sup>25</sup> found that fat heals poorly and that muscles should not be sutured because nutrition may be jeopardized, with poor healing resulting. Meleney<sup>18</sup> has re-emphasized that catgut and silk should not both be used in the same wound because there is more liability of it becoming infected than when either suture material is used alone.

The objection pointed out by Duma is perhaps true for braided silk, but the use of braided silk is not a Halsted principle, since he recommended the use of only fine silk. By its very nature, braided silk cannot be fine silk. Whiteford's theory of silk cutting through muscles is likely correct but Halsted did not recommend the suturing of muscles. The belief that silk used in intestinal anastomosis causes ulcers is unfounded, since we know marginal ulcers may develop regardless of the suture material used.

In a survey of the literature definite advantages can be found in the employment of silk for suture material. These advantages are increased per primam healing, more firm healing, decreased disruption of wounds postoperatively, security of knots, sterility and safety of suture material, and economy.

It is the aim of every surgeon to obtain per primam healing of clean surgical wounds in order to avoid the infections that may prolong hospitalization and possibly alter the expected ultimate result of surgical procedure. Reliable reports show that wound healing with silk approaches the perfect. Whipple,<sup>27</sup> in a three-year study, found that 8.9 per cent of 810 catgut cases had trivial wound infections, while 1.9 per cent had serious infections, whereas 1,169 silk cases showed 1.5 per cent trivial infections, and 0.7 per cent serious wound infections. Meleney reported 1,078 clean cases from the Presbyterian Hospital, in which 54 cases, or 4.8 per cent, became infected, while only 1.1 per cent of the infections were serious. Thompson found that by using nonabsorbable silk or linen he obtained 95 per cent primary wound healing, compared to 90 per cent primary healing with catgut. He felt that the absorbability

of catgut is its only virtue when compared with silk. Goff further showed the reliability of silk when he reported 2,755 clean abdominal wounds. Of this number, 1,645 closed with absorbable sutures gave extensive infections in 4.7 per cent, while there were slight infections in 5.3 per cent. There were 1,110 cases closed with nonabsorbable sutures with resultant severe infections in 2.1 per cent and slight infections in 1.9 per cent.

Guthrie and Sharer,<sup>8</sup> in 1935, stated that the abundant blood supply of the thyroid region with its rapid healing and resistance to infection lends itself admirably to the use of silk. They further stated that mild transient infections may develop under the skin flaps but that infections beneath the strap muscles have been absent. Shambaugh and Dunphy found that the silk wound is better able to tolerate slight bacterial contamination which might in the catgut wound result in suppuration. They showed histologically that satisfactory healing in heavily infected wounds occurs without discharge or removal of sutures. It was shown also that catgut may occasionally, even in the presence of infection, resist absorption and remain unchanged in the tissue for long periods of time. This experimental finding concurred with clinical observations that complete healing of catgut wounds may be delayed by bits of unabsorbed catgut. Parsons<sup>22</sup> found 12.7 per cent recurrences in all types of hernias when repaired by catgut, compared to 3.5 per cent recurrence when silk was used.

Mason<sup>16</sup> stated that the need for drainage has nearly disappeared in thyroidectomies in clinics where silk is used. Also, in breast amputations the use of drainage has decreased and the period of hospitalization and the number of dressings have decreased accordingly. Trout<sup>26</sup> reports that he has used silk in over 600 breast amputations with very good results. Meleney stated that the superiority of fine silk over catgut is due to better hemostasis because silk knots do not slip, the minimal cellular and fluid reaction about the silk sutures, and the

gentleness required of the surgeon in handling the tissues

The healing wound that has been sutured by silk is more firm than catgut wounds. Howes and Harvey,<sup>12</sup> in 1930, showed histologically that silk sutures become encysted by a fibrous capsule. They found that during the first four days a wound is only as strong as the holding power of the sutures. In this latent period silk maintains its strength while catgut is rapidly absorbed. In 1933 Howes showed experimentally that the strength of wounds sutured by silk returns more rapidly than when sutured by catgut. Howes found that small bites of tissue with interrupted sutures gave the greatest holding power and strength to the wound.

Delusence of clean surgical wounds has been decreased by the use of silk sutures. Howes found that less exudation was found in silk wounds and that exudation was rarely present after the fifth day. He found that a higher percentage of disruptions occurred with catgut, indicating a greater unreliability of this material. Kraissl, Kesten, and Cimiotti<sup>13</sup> showed that sensitization of animals to catgut and chromic acid definitely disturbed and prolonged wound healing. Five patients who disrupted their wounds and who gave a history of allergy showed evidence of sensitivity. They found that 52 per cent of those patients without allergic history gave a positive response when tested. These authors feel that by skin testing the allergic factor in wound disruptions may be eliminated, thereby reducing the incidence of this catastrophe. The presence of a positive allergic response to catgut should be a positive indication for the use of silk sutures.

Silk knots are more secure than those of catgut. Meleney believes that silk knots do not become untied as easily as catgut knots, particularly when wound surfaces move to a certain extent, as in thyroid operations. A suture material's safety is dependent on its degree of sterility. It was found by Meleney that 22 of 174 specimens of catgut (12.5 per cent) yielded spore-forming bacteria, including

gas gangrene organisms. No pyogenic cocci were found. In 1933, Clock<sup>2</sup> found that 27 per cent of American copperized catgut and 52 per cent of German brands were contaminated. He also found that peppermint oil catgut sutures were 100 per cent nonsterile. He made a study of foreign made brands in 1934<sup>3</sup> and found them to be 46.5 per cent nonsterile. Clock concluded that carefully controlled heat sterilization is the only reliable and positive method of sterilizing surgical catgut sutures. In 1935,<sup>4</sup> he made further bacteriologic studies of American catgut, from which he concluded that the published results of Meleney's study of catgut sterility had had little or no effect in ridding the market of nonsterile sutures. It is evident that the danger of nonsterile catgut sutures still exists. This places the reputation of the surgical profession and hospital, as well as the welfare and life of the surgical patient, in jeopardy.

Clock further reported, in 1937,<sup>5</sup> studies showing that silver catgut caused definite irritation to the tissues, as shown by the marked leukocytic reaction and infiltration of cells of abscess like appearance which they induced. This is a contradiction of the statement made by Linhart and Lieb that 'the silver has a nonirritant action on living tissues'. A continuation of the catgut studies by Clock, in 1938,<sup>6</sup> showed that all the bacteria isolated from nonsterile catgut were spore-formers. There were 36 spore-forming bacterial species isolated and identified, of these 5 were anaerobic and 31 were aerobic and facultative spore-forming bacilli. The senior author recalls 3 distressing cases of fatal tetanus following the employment of catgut suture material. Two of these infections followed gas trointestinal operations in another clinic and 1 in a clean open operation on the knee joint in our clinic. While spores might conceivably have been on the skin or, in the gastrointestinal cases, have come from the intestinal tract, it is safe to assume that the infections were probably caused by nonsterile catgut. The thorough studies reported here, which were made by Meleney, Chatfield,<sup>14</sup>

and Clock, show the possible hazards the surgeon faces in using catgut as suture material. In contradistinction it is known that silk may be completely sterilized by boiling.

The cost of catgut is roughly three times that of an equivalent amount of surgical silk. This becomes a consideration of importance to economy on an active surgical service.

In the use of silk for clean surgical wounds it has been noted that morbidity and drainage have decreased. Patients who have appendectomies performed with the silk technic are up by the fourth day and home by the seventh, whereas formerly they were hospitalized nine days. Incisions in the upper or lower abdomen for gallbladder, gastric, or pelvic surgery are sufficiently healed by the tenth to twelfth day to allow the patients to be up and they are discharged by the fourteenth to sixteenth day—two to four days before comparable wounds closed with catgut. Similarly, patients having herniorrhaphy performed are saved two to four days of hospitalization. In addition to the rapid, firm wound healing, it is notable that there is a paucity of serum pockets compared to those found with catgut wounds.

The operations of thyroidectomy and mastectomy—simple and radical—have been much improved by the use of silk. A review of the last 150 thyroidectomies performed in this clinic using the silk technic has been recently published.<sup>9</sup> Only 1 of the 150 cases was drained, and this was the second case of the series. The drains were removed in twenty-four hours and healing was per primam. In contrast, when catgut was used we drained nearly all thyroid wounds for a period of fifteen days. We do not hesitate now to close wounds with even deep substernal pockets without drainage. This technic has markedly improved the percentage of per primam healing and the morbidity in thyroidectomies. Serum accumulations requiring drainage are rare. The hospitalization period for subtotal thyroidectomy patients now averages eight to ten days, as compared

to a previous fourteen to eighteen days with the catgut technic. There was but 1 infected wound in this series and this was a trivial infection that did not prolong the patient's hospital stay.

Formerly, all breast amputations, simple or radical, were performed using catgut for ligature. Almost invariably these wounds were drained and serum collections were the rule—infections beneath the flaps fairly common. Using the silk technic, the wounds have been uniformly closed without drainage. Serum accumulations have been infrequent and no infections have developed. The hospitalization period has been reduced four to six days in these cases. We uniformly use a rubber-sponge pressure dressing following thyroidectomy and mastectomy, and feel that this is of value in obliterating dead space and preventing the accumulation of serum.

All of the surgeons in the clinic are now using silk for all herniorrhaphies, being convinced that recurrence is markedly decreased over chromic catgut. This is the opinion of most surgeons who employ silk. A recent study by Longacre,<sup>10</sup> based on a careful and reliable follow-up study on patients operated upon at Presbyterian Hospital, proves this to be true without question. In this series, 496 hernias were repaired with silk, and of this group 3.4 per cent recurred. Of 270 hernias repaired with chromic catgut, 12.5 per cent recurred. In the direct inguinal group, 89 silk repairs had a recurrence of 4.49 per cent, as compared with 13.6 per cent in 22 chromic catgut repairs. The incidence of recurrence in 278 indirect inguinal hernias repaired with silk was 2.16 per cent, in contrast to 9.8 per cent in 153 with chromic catgut. Longacre reports 15.04 per cent infections in 246 hernias repaired with chromic catgut in this series, in contrast to 2.55 per cent infections in 470 cases repaired with silk.

Infections that have occurred have not run a course that was appreciably different from those of catgut wounds. Two appendectomy wounds that were infected drained about six weeks, and a third one

## INFECTIONS IN SILK CASES—JULY 1 1937 TO APRIL 20 1939

Operations	Number Cases	Number Infections	Percentage Infections
Thyroidectomy	165	1	0.6
Appendectomy	124	3	2.4
Herniorrhaphy (inguinal)	64	1	1.5
Herniorrhaphy (umbilical)	2	0	0
Herniorrhaphy (diaphragmatic)	1	0	0
Excision breast tumor	6	0	0
Mastectomy	0	0	0
Radical mastectomy	10	0	0
Cholecystectomy	12	0	0
Cholecystectomy-choledochostomy	6	0	0
Cholecystogastrostomy-choledochostomy	1	0	0
Cholecystostomy-gastroenterostomy	1	0	0
Gastroenterostomy	13	0	0
Graham closure ulcer-gastroenterostomy	1	0	0
Pyloroplasty-gastroenterostomy	1	0	0
Judd pyloroplasty	5	0	0
Polya-Balfour gastric resection	0	0	0
Salpingo-oophorectomy (with or without appendectomy)	8	1	12.5
Baldy Webster—appendectomy	1	0	0
Supravaginal hysterectomy	25	0	0
Exploratory laparotomy	4	0	0
Wilm's operation—appendectomy	1	0	0
Meckel's diverticulectomy	1	0	0
Colostomy	1	0	0
Excision cyst of testicle	1	0	0
Bottle operation—hydrocele	2	0	0
Beck operation—elephantiasis	1	0	0
Excision mixed tumor submaxillary	1	0	0
Repair splenic blood	1	0	0
Total	470	6	1.27

a shorter period. It has been shown experimentally by Shambaugh and Dunphy that satisfactory healing takes place in even severely infected wounds. Ochsner<sup>21</sup> feels, in fact, that silk is particularly indicated in cases of infection, since it is these cases in which healing is delayed and in which rupture is likely to occur. He reiterates, however, Halsted's principles of fine silk, interrupted sutures, knots cut short, and small bites of tissue included in the suture. He stresses that it is continuous silk in the presence of infection that is dangerous. Shambaugh and Dunphy showed that catgut may remain unabsorbed in infected wounds for months, acting as a nidus for infection. In this clinic there have recently been 2 patients who had infected wounds in which catgut sutures were used. They had drainage kept up for three months by buried chromic catgut knots. The sinuses closed only when the knots were removed or extruded.

### Analysis of Cases

A short time after July 1, 1937, silk was adopted in the work of the Guthrie Clinic as the suture-ligature material used in performing all thyroidectomies, many mastectomies, some herniorrhaphies, and a percentage of uncomplicated ap-

pendectomies. It has also been used in the closure of incisions for varied, clean major operations by some of the surgeons. Although absorbable sutures may have been used in whole or in part in many of these operations, silk alone was used in the tier closure of the incisions. Some members of the surgical staff still use catgut, so we are afforded an excellent opportunity to compare the healing of wounds in which catgut and silk, respectively, are used as the suture material. This study comprises 470 operations in which the silk technic was employed. These cases with the resulting infections, are tabulated above.

Three hundred and five of these cases have been previously reported. It is of interest that in this smaller series the incidence of infection was 1.3 per cent with the addition of 165 cases the incidence of infection remains 1.27 per cent—essentially the same. Two of these infections occurred in appendectomies in which the pathology of the appendix had spread beyond the confines of the appendix itself. We believe the use of the silk technic in gangrenous or perforated appendicitis is ill advised and we shall not use it in such cases in the future. It may be reiterated, however, that the infections cleared up within three and

six weeks, respectively, in these 2 cases

As a basis for comparison, 2,047 clean cases operated upon, using catgut as the suture-ligature, have been analyzed. These cases were treated during the same period of time and are comparable in every way to the group of silk cases presented. There were 59 wound infections occurring in this group. This constitutes an incidence of 2.9 per cent infection in the catgut wounds, as compared to 1.27 per cent in the silk cases, or an incidence of infection in catgut closures of over two times that occurring in silk closed wounds.

In the year preceding the introduction of the silk technic for thyroidectomy, 110 subtotal thyroidectomies were performed with the use of a combined silk and catgut technic. The incidence of infection was 1.8 per cent, compared to 0.6 per cent when using silk alone.

Since July 1, 1937, 101 herniorrhaphies were performed, using chromic catgut, with 6 infections—5.9 per cent. In this series 66 herniorrhaphies (64 inguinal and 2 umbilical) have been performed under the silk technic with but 1 infection, an incidence of 1.5 per cent.

During the same period of time, 13 infections occurred in 463 clean appendectomies using catgut—an incidence of 2.8 per cent—compared to 2.4 per cent with silk. It should be reiterated, however, that 2 of these infections occurred in cases in which the pathology had spread beyond the confines of the appendix, so they were not clean cases.

It is obvious from these figures that the use of the silk technic has resulted in only about half the number of infections encountered with catgut. In none of the infections occurring was the course of the infection markedly different from a similar infection of a catgut wound. Three of the infections should be designated as of mild and 3 as of moderately severe degree.

### Summary and Conclusions

The use of silk in general surgery has found many advocates among careful surgeons in this country and abroad. Its use is increasing. The importance of the

principles to be observed in the use of silk, originally stated by Halsted and reaffirmed by Whipple, cannot be over-emphasized.

Since July 1, 1937, the silk technic has been used in the Guthrie Clinic in the performance of 470 surgical operations. Based on this experience, the authors are convinced that silk as suture-ligature material offers definite advantages over catgut in clean cases, knots are tied with greater ease and when tied give a feeling of greater security than when tied with catgut, there is less anxiety on the part of the surgeon as to the sterility of his suture material because silk may be readily sterilized by boiling, wounds heal with less tissue reaction than with catgut, serum pockets seldom result, and per primam healing is the rule, infections occur less often in silk than in catgut wounds and postoperative wound disruption is a rare occurrence, the lower cost of silk is advantageous. Because of early firm healing and accurate coaptation of the wound throughout the healing process, the period of hospitalization may be materially reduced under the usual period for catgut wounds, with resultant saving to the hospital and patient.

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## Discussion

Dr Frank L. Meleney, *New York City*—  
 Dr William S. Halsted was unquestionably the  
 first great exponent of the use of silk in the  
 ligature of blood vessels and the suture of  
 wounds.<sup>1</sup> His technic has been generally followed  
 by those who came under his influence, particu-  
 larly his resident surgeons who are widely  
 scattered throughout the country.

This technic however has not been followed  
 by graduates of other schools until recently. It  
 was introduced into the Presbyterian Hospital  
 in 1930. This came about indirectly by way of  
 China. Dr Adrian Taylor, one of Dr Halsted's  
 assistant residents was head of the Surgical  
 Department of the Peiping Union Medical  
 College, where I served a term of four years.  
 Here I received my introduction to the use of  
 silk.

No statistical studies had ever been reported  
 by Dr Halsted and we made no statistical  
 studies in Peiping but I was convinced of the  
 advantages of silk over catgut particularly in  
 thyroid operations, where I had been accustomed  
 to frequent collections of serosanguinous exudate,  
 the frequent use of drains and a fairly high per-  
 centage of trivial or serious wound infections.  
 The kindly healing of the thyroid cases where  
 the ligature of blood vessels and the suture of  
 wounds were done with silk, was in sharp con-  
 trast to the stormy healing of the catgut cases.

In 1925 when a systematic and careful study  
 of wound infections was begun at the Presby-  
 terian Hospital the base line was laid upon which  
 a careful comparison of silk and catgut cases  
 could be determined. This was first done in  
 1930 when a small series of thyroid cases which  
 I closed with silk was compared with a similar  
 series closed with catgut. The favorable results  
 with silk led to an experimental comparison of a  
 larger series and one of the surgeons in the  
 thyroid clinic became completely converted to  
 the use of silk. He had planned to run a six  
 month series but at the end of three months it  
 was so obvious that further study was not  
 necessary.

In 1931 the surgeons in the thyroid clinic  
 adopted this technic and it was applied to a  
 large group of inguinal hernias with like results.  
 In the next year the fracture service took it over

for use in the open reduction of fractures and  
 arthrotomies. Since 1934 it has been generally  
 accepted by all of the members of our staff for  
 all clean cases and Dr Whipple has become an  
 ardent advocate. Since 1930 by every measure  
 that we can make and all statistics that we can  
 gather from our wound healing records the  
 superiority of silk over catgut has been demon-  
 strated.

Vivier<sup>7</sup> brought experimental confirmation  
 with a series of experiments in animals in which  
 he showed that the reaction of the tissues to  
 catgut by the exudation of fluid and cells far  
 exceeded that which occurred with silk. He  
 also showed that the tissues reached a maximum  
 strength on an earlier day with silk than with  
 catgut.

Our results were first reported in 1935 but  
 recently Dr Parsons<sup>8</sup> has reported a study from  
 the point of view of recurrences in hernia and  
 this study has been enlarged and completed by  
 Lougacre<sup>2</sup> whose figures amply confirm the  
 earlier report.

In recent years there has been a tendency to  
 use silk in cases in which there is a large degree  
 of contamination of the wound with micro-  
 organisms for example in gallbladder and  
 intestinal work. Some advocate the use of silk  
 in frankly infected cases.<sup>6</sup> I feel however that  
 this is treading on dangerous ground and is  
 likely to bring the silk technic into disrepute.  
 In fact the use of silk requires a high standard  
 of general surgical technic which includes the  
 gentle handling of tissues, strict hemostasis, the  
 avoidance of mass ligatures, and the use of fine  
 suture material, etc. Those who use silk under  
 any other conditions may come to grief. I am  
 however convinced that anyone who has schooled  
 himself to high basic standards of surgical  
 technic will be able to demonstrate promptly to  
 his own satisfaction the advantage of silk over  
 catgut.

This has been accepted in many of the clinics  
 in New York City that have followed the recent  
 reports and I am sure, the Halsted silk technic  
 is gaining in favor in many other clinics through-  
 out the country. A recent report has come for  
 example from the Hospital for the Ruptured  
 and Crippled in New York City which was  
 presented at a recent meeting of the New York  
 Surgical Society. In the discussion of this  
 paper Dr Heuer who was brought up by Dr  
 Halsted in the use of silk explained that at Johns  
 Hopkins Hospital there was no basis for com-  
 parison of silk with catgut because catgut was  
 never used in clean cases.<sup>3</sup> It is of considerable  
 interest I think, that the impression of Halsted  
 so firmly grounded in his excellent clinical ob-

servation, is now being confirmed by unquestionable statistical evidence in many different clinics

Dr Guthrie's figures are of great interest and importance. I wish particularly to congratulate him on the low incidence of wound infection

Dr Guthrie's emphasis on fine silk as compared with the coarser grades, including braided silk, has been repeatedly confirmed

My own feeling is that plain silk is fully as satisfactory as the prepared, waxed silk or the so-called serumproof silks, and very much cheaper. It is true the ordinary silk deteriorates with boiling, but it is so cheap that this factor is hardly important. It should not be boiled more than twice. The combination of catgut and silk in our hands has shown a higher percentage of infection than catgut or silk alone, which confirms a clinical observation that Halsted made

I am very skeptical of using silk in the presence of infection because certainly when infection occurs, silk knots are very much more troublesome than catgut knots and very much more likely to cause continuous drainage until the silk stitch is either spontaneously discharged or removed. Therefore, continuous silk is of great annoyance in a case that becomes infected, because the end of the suture may lie in uninfected tissue and will not be released unless the infection travels along the suture to the knot and separates it from the surrounding tissue. However, the continuous silk stitch in the peritoneum is of great value in giving an accurate closure of the wound margins. We frequently use it for the peritoneal stitch, which includes the posterior sheath of the rectus, reinforcing the continuous silk with interrupted sutures. The anterior sheath, however, can be well approximated with interrupted sutures. If infection occurs, it usually does not go down to the peritoneal layer, so that the continuous stitch at this site is not troublesome in an undrained wound

The necessity for drainage has practically disappeared with the use of fine silk in thyroid cases, and there has been a decided shortening of the hospital stay even with toxic cases

With regard to the sterility of catgut, the situation has greatly improved. We believe that in the hands of the Food and Drugs Administration under the new Food and Drugs Act this will continue to improve, and only in rare instances will unsterile catgut be found on the market. However, it should be noted that the streptococcus and staphylococcus wound infections are almost never due to catgut contaminated with these organisms, which are relatively easily killed in the sterilization process, even when this may not be adequate to destroy the spore-forming organisms. Sterile catgut, however, in the presence of the usual contaminating organisms (which invariably enter an operative wound either from the deep layers of the skin or directly or indirectly from the air), provides a favorable environment for growth because of the presence of an irritating foreign body and the resulting exudation of cells and fluid into the tissues

I would like to present again slides showing our comparative figures of silk and catgut in 1930-1934, which appeared in our report of 1935,<sup>4</sup> and likewise, a summary of Longacre's figures.<sup>2</sup>

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## CHIROPRACTOR CAMPAIGN

New York State chiropractors are planning an intensive campaign to break the "monopoly represented by the A.M.A." The drive will take the form of newspaper advertisements, radio broadcasts, mass meetings, and the formation of lay chiropractic "auxiliaries."

Expenditures of \$50,000 to this end, a spokesman for the group said, were expected to be approved shortly by a special committee

## NEWS FROM RUSSIA

Corneas taken from the eyes of corpses and preserved by refrigeration have been grafted onto living eyes in 440 sight-saving operations, according to Dr V. P. Filatov, Director of the Odessa Institute for Experimental Ophthalmology, says Science Service. The cold-storage corneas graft far more successfully than those from the eyes of living persons, he finds, and exercise a beneficial effect on the adjacent tissue

# CONGENITAL ABSENCE OF THE VAGINA

## Features Simplifying the Procedure for Reconstruction

NATHAN P. SEARS, M.D., Syracuse, New York

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COMPLETE congenital absence of the vagina is a relatively rare condition, and when it is discovered the question presented to the gynecologist is when and how the condition should be approached.

First, the patient should be an adult and established beyond doubt as a female. This can be assured if the body conformation is of feminine type with normal breasts, normal hairsuit, and a normal vulva. Conclusive proof is obtained by finding the female sex hormone in blood and urine.

It is obvious that the reconstruction without marriage is unwise, and also a better result is obtained if marriage follows as soon as the new vagina is healed.

Whether or not a woman with no vagina should be operated upon has been questioned. I am convinced a young woman, otherwise normal, should be given the chance for a normal sex life and companionship of marriage. That she be sterile may be of relatively minor importance, since sterile women with apparently normal genitalia have either adapted themselves to a sterile marriage or have satisfied the desire for children by adopting them.

### Operative Procedures

When all the necessary requirements have been met, the next question is what procedure should be used. In discussing the surgical methods of the day I will omit, with due respect to their inventors all except three types, namely, the Frank Geist<sup>1</sup> operation, the McIndoe<sup>2</sup> operation, and the procedure described by Wharton.<sup>3</sup>

In the Frank Geist operation, a tube flap is raised on the inner aspect of the thigh where the hair is scant. The distal

end of the tube is left undisturbed until circulation seems established and then gradually divided from its origin, letting enough time elapse to prove that the blood supply is established. The space between the bladder and rectum is then prepared, the flap completely released at its distal end and the tube turned with the skin side in and placed between rectum and bladder. When circulatory contact is established the proximal pedicle is divided at the vaginal orifice and the remainder of the flap sewed down to cover the raw area left on the thigh. A plug is used to prevent shrinkage and to keep the graft in place. Good results were reported by Frank, Dannreuther,<sup>4</sup> and by Douglas.<sup>5</sup>

The operation, although an excellent one, requires many stages over a period of weeks. The lining of the newly formed vagina is thick, rather harsh, and may contain hair and sebaceous material.

McIndoe in his operation used either a Thiersch or half thickness graft carefully applied to a suitable plug and inserted into the space between rectum and bladder. The plug is removed in two or three months and the patient wears a removable plug part time for two or three months more. The result is a soft, pliable vaginal canal that functions excellently. By this method Counseller<sup>6</sup> reports 7 cases and McIndoe, 1.

Wharton, after making the opening where the vagina should be, inserted a plug, preferably of balsa wood and measuring 10 X 4 cm., which is kept in place three weeks while the patient remains in bed. During the first month after leaving the hospital, frequent office visits are made and the epithelialization observed and a loose plug is worn at night. Inter-



# Books

Books for review should be sent to the Book Review Department at 1313 Bedford Avenue, Brooklyn, N Y. Acknowledgment of receipt will be made in these columns and deemed sufficient notification. Selection for review will be based on merit and the interest to our readers.

## RECEIVED

**Recent Advances in Haematology** By A Piney, M D Fourth edition Octavo of 312 pages, illustrated Philadelphia, P Blakiston's Son & Co, 1939 Cloth, \$5 00

**Surgery of the Eye** By Meyer Wiener, M D and Bennett Y Alvis, M D Octavo of 445 pages, illustrated Philadelphia, W B Saunders Co, 1939 Cloth, \$8 50

**Modern Clinical Psychiatry.** By Arthur P Noyes, M D Second edition Octavo of 570 pages Philadelphia, W B Saunders Co, 1939 Cloth, \$5 00

**The Surgery of Pain** By René Leriche, M D Translated and edited by Archibald Young, M D Octavo of 512 pages, illustrated Baltimore,

Williams & Wilkins Co, 1939 Cloth, \$6 50

**Pneumonia with Special Reference to Pneumococcus Lobar Pneumonia** By Rodenick Heffron, M D Octavo of 1,086 pages New York, Commonwealth Fund, 1939 Cloth, \$4 50

**Post-Mortem Appearances** By Joan M Ross, M D Fourth edition, 16 mo of 275 pages New York, Oxford University Press, 1939 Cloth, \$2 50

**The Tissues of the Body An Introduction to the Study of Anatomy** By W E LeGros Clark, F R S Octavo of 372 pages, illustrated New York, Oxford University Press, 1939 Cloth, \$5 50

## REVIEWED

**Civilization and Disease** By C P Donnison, M D Octavo of 222 pages Baltimore, William Wood & Co, 1938 Cloth, \$3

The author of this book, after being a medical officer in the isolated parts of Africa, engaged in practice in England. He experienced a striking contrast in disease as he found it among primitive people and among civilized persons. His book on the relationship between civilization and disease is a result of his experiences. He discusses both the organic and the psychogenic diseases, covering well a wide range of subjects.

The industrial revolution has made a profound impression upon human beings, and the relationship of environment and civilization to disease is still a subject open for further research and study. The book, therefore, will prove of interest to those who are especially occupied with this phase of endeavor. It is highly recommended for all students of medicine and human behavior.

IRVING J SANDS

**Hypertension and Nephritis** By Arthur M Fishberg, M D Fourth edition Octavo of 779 pages, illustrated Philadelphia, Lea & Febiger, 1939 Cloth, \$7 50

This valuable book is indispensable for anyone interested in Bright's disease. Dr Fishberg presents his subject in a masterly and imitable fashion with details on all past and recent data concerning nephritis. The historical phase of the subject is orderly and well presented, and throughout the text clinical manifestations of Bright's disease are explained and correlated with established anatomic and physiologic facts. The presentation of clinical manifestations is concise and clear. Additions and alterations in the revision of this book include the presentation of the newer considerations on renal failure—Addis count, mercurial diuretics, Goldblatt's experimental production of hypertension, the treatment of edema and Masugi's experimental production of glomerulo-

nephritis, as well as the importance and significance of decreased renal blood flow in the pathogenesis of renal failure.

Although nothing of scientific importance is left out, this book is richest in practical clinical facts, and of greatest value to the practicing physician.

E R MARZULLO

**Carbon Monoxide Asphyxia.** By Cecil K. Drinker, M D Octavo of 276 pages, illustrated. New York, Oxford University Press, 1938 Cloth, \$4 50

This is an excellent monograph for the use of those in industrial work where carbon monoxide constitutes a hazard. To the laboratory worker the book does not present an adequate review of the massive literature concerning carbon monoxide poisoning but does, however, give leads to where key references may be found. To those who are primarily concerned with the acute problems of carbon-monoxide asphyxiation and the resuscitation of its victims, it should prove a most valuable manual. Professor Drinker's presentation is made with his usual clarity of style and definition of purpose with the result that the book is most readable.

G B RAY

**The Physiology of Anesthesia.** By Henry K. Beecher, M D Octavo of 388 pages New York, Oxford University Press, 1938 Cloth, \$3 75

Dr Beecher has collected the material in this book as a basis for his lectures and teaching on anesthesia at Harvard Medical School, and naturally has gone into complete bibliographic details of all the animal experimentation on this subject to prove or disprove the accepted theories and data of clinical anesthesia. The book states the proved facts of the physiology of anesthesia theory and practice, and discusses the large amount of laboratory experimentation done to prove the accepted, but perhaps not authenticated, clinical ideas.

The beginning of the book discusses the various theories of general anesthesia, still as elusive and unexplainable as the sleep and dreams whose nature they partake of, and the same uncertainty of definite result follows the conclusions of much of the research work. Yet it is a good college textbook no partisan statements but the mere outlining of laboratory tests for the student to accept for what they are worth.

Medical art and the clinical application of drugs appear to be far ahead of the scientific laboratory study in the field of anesthesia as in many other branches of medicine. Practical anesthesia often disregards or overlooks the danger signs which a study of the physiology of the drugs in use might make plainer hence this companion to the clinical work is quite essential to any student of the subject.

GEO W TONG

**Scarlet Fever.** By George F Dick, M D and Gladys H Dick, M D. Octavo of 149 pages, illustrated. Chicago, The Year Book Publishers, Inc 1938. Cloth \$2.

So much of our modern knowledge concerning the specific etiology of scarlet fever has been the result of research work carried out by Drs. George and Gladys Dick that a book by them is at once authoritative and of commanding importance and interest. Despite the many skeptics who have come forward to question the specificity of the *Streptococcus scarlatinae* there is an ever increasing volume of literature substantiating the claims that the Dicks have made. The application of the method of skin testing and active immunization with scarlet fever toxin has been employed in many countries, and has consistently resulted in a notable reduction in the incidence and mortality of the disease in the immunized group.

While all fifteen chapters of this book are of interest, those devoted to the clinical aspects are appropriately more briefly considered than those dealing with the important subjects of etiology, treatment, skin test for susceptibility, the prophylaxis, specificity of hemolytic streptococci, allergy, antibacterial immunity and local and oral immunization. In addition to reviewing the entire question of specific etiology of scarlet fever, the authors take up many controversial points and bring out interesting and some entirely new observations and deductions. In all discussions of their own work they have maintained a most commendable modesty.

JOSEPH C REGAN

**Emotions and Bodily Changes. A Survey of Literature on Psychosomatic Interrelationships 1910-1938.** By H Flanders Dunbar, M D. Second edition. Octavo of 601 pages. New York, Columbia University Press 1938. Cloth \$5.

This valuable work, well known in its first edition to all workers in the field of psychosomatic relationships, is brought down to the year 1938 in this second edition. Aside from this, it is little changed and remains the only important critical bibliography in this domain. Dr Dunbar has amply attained her objective of bringing together in one volume a summary of material

available in the literature of biology, psychology, psychoanalysis, and medicine on the relations between mind and body. A glance through the book will convince general practitioner and specialist alike that there is something of importance in it for everyone who practices clinical medicine. Gynecologists for example will find rich material on the possible etiology of such conditions as menorrhagia, leucorrhoea, etc., which they may have considered hitherto only in their purely physical aspects. Internists, ophthalmologists, and specialists of every kind will be similarly rewarded.

The plan of the book is such as to render it easy to lay one's hands quickly on any topic or if preferred to read the book through as a comprehensive whole. Part I deals with orientation and methodology and contains a history and critical review of the entire subject. Part II discusses in detail the organ systems. Part III contains therapeutic considerations. One would wish for a section on the relationship between emotions and changes in body weight but aside from this all subjects are more than adequately covered. It would be highly desirable if Dr Dunbar could have the funds and help made available to her to add a yearly review which would keep the bibliography really up to date. At any rate she is to be congratulated on her present achievement and on the recent publication of the first issues of *Psychosomatic Medicine* which contains original papers in this important branch of medicine.

MILTON PLOTZ

**The Technique of Contraception.** By Eric M Matsner, M D. Fourth edition. Octavo of 50 pages, illustrated. Baltimore, Williams & Wilkins Co 1938. Paper \$0.50.

The ideal contraceptive has not yet been discovered. It is conceded that more research is needed and more experience with existing methods is required. It is no idle dream however that physicians must concern themselves more and more with family planning and child spacing. Modernity demands it.

The latest revision of this small brochure gives in outline details of the indication for and the technique of contraception. It is highly recommended to every physician in need of such instruction.

H. B. MATTHEWS

**Getting Ready to Be a Father.** By Hazel Corbin. Octavo of 48 pages, illustrated. New York, Macmillan Co 1939. Cloth \$1.25.

This little illustrated book of forty-eight pages will be found useful and interesting by many prospective fathers and mothers too.

It is written in a clear and straightforward manner and offers definite help in the selection of good hospitals, physicians, and nursing care. It gives helpful information regarding physical and psychological problems to be faced by both parents.

While the author has dedicated her book to men, we are quite sure that wives, as well as husbands, will welcome it and find it helpful.

WM. SIDNEY SMITH

**Allergic Diseases, Their Diagnosis and Treatment.** By Ray M Balyeat, M D Fifth edition Octavo of 547 pages, illustrated Philadelphia, F A Davis Company, 1938 Cloth, \$6

The fourth edition of this book, issued two years ago, has been revised and enlarged to form the present fifth edition

This volume, written primarily for the general practitioner, concerns itself mainly with asthma and hay fever, although a third of the book is devoted to other manifestations of allergy. Theoretic discussion and extensive reference to the literature have been curtailed in order to permit a more practical presentation of the various subjects

The chapter on the therapeutic value of the intratracheal use of iodized oil in the treatment of asthma has been rewritten. The leukopenic index as a diagnostic acid in food allergy is strongly championed by the author, despite its general condemnation by most allergists

The possibility of allergy as a cause of detached retina, ureterospiasm, and hydroarthrosis is discussed in the present edition

MATTHEW WALZER

**A Manual of Tuberculosis for Nurses and Public Health Workers.** By E Ashworth Underwood, M D Second edition Duodecimo of 404 pages, illustrated Baltimore, William Wood and Company, 1938 Cloth, \$3 25

The purpose of this manual is to bring together in convenient form all essential information required by nurses engaged in hospital and private nursing of tuberculosis, and to give them sufficient working knowledge of the manifestations of the disease in bodily systems, along with the procedures and apparatus used in therapeutic approaches. Consequently, chapters are devoted to the etiology and pathology of tuberculosis, the general bodily reactions, the signs and symptoms of pulmonary tuberculosis (in splendid detail), and the sanatorium treatment with emphasis on sanatorium nursing. Collapse measures are presented, with various methods used here and abroad. Chapters are also devoted to tuberculosis in children, and to joint and bone lesions, together with the use of tuberculin in diagnosis. Helpful advice is also given for general administration and dispensary routines in practical epidemiology

The book is simply and intelligently written, and the subject matter is well illustrated. The salient points are summarized at the end of each chapter, and a helpful glossary is appended. The book should be available to all nurses affiliated with tuberculosis work, whether it be an inpatient or outpatient service

HERMAN E WIRTH

**Milestones in Medicine** Laity Lectures of the New York Academy of Medicine Introduction by James A Miller, M D Duodecimo of 276 pages, illustrated New York, D Appleton-Century Company, Inc, 1938 Cloth, \$2

This unusually interesting small volume includes a series of lectures delivered at the New York Academy of Medicine to the laity. These

lectures encompass an exhaustive historical background. Dr Smith Ely Jelliffe discusses psychiatry, Dr Charles R Stockard, heredity, and the late Dr Frederick Tilney, the evaluation of the human brain. There are interesting chapters on medical history by Dr Henry E Sigerist, on leprosy by Dr Newton E Wayson, on endocrinology by Dr Walter Timme, and on medicine at sea in the days of sail by Dr Karl Vogel. The book makes interesting reading for the layman, and may well find a place on a shelf of the physician's library

A M RABINER

**Diseases of the Nose, Throat and Ear** By W Wallace Morrison, M D Octavo of 675 pages, illustrated Philadelphia, W B Saunders Co, 1938 Cloth, \$5 50

This manual is intended for the undergraduate student and practitioner. It is written from the practical experiences of the author, reflecting as it does his efforts to acquaint the reader with the fundamentals of otolaryngology

The pen and ink sketches are unique and display accurately and in a simple manner many of the conditions and procedures

This book is recommended highly as a primer for diseases of the ear, nose, and throat. It should be especially valuable for the student and beginner in otolaryngology

M C MYERSON

**Landmarks in Medicine** Laity Lectures of the New York Academy of Medicine Introduction by James A Miller, M D Duodecimo of 347 pages, illustrated New York, D Appleton Century Co, 1939 Cloth, \$2

This volume contains the third series of lectures for the general public conducted by the New York Academy of Medicine. With one exception these seven papers are all historical. Especially interesting is Dr H S Martland's essay on *Dr Watson and Mr Sherlock Holmes*

GEORGE ROSEN

**Synopsis of Clinical Laboratory Methods.** By W E Bray, M D Second edition 16 mo of 408 pages, illustrated St Louis, C V Mosby Co, 1938 Cloth, \$4 50

This second edition is of the same high order as was the first. Its purpose according to the author is to bring together a ready reference of the most important and most frequently used methods of laboratory diagnosis. This purpose it serves well. Though a small volume it covers the field of clinical pathology fully. The directions for the various methods are brief, to the point, and sufficient, extraneous details are omitted. One would sometimes wish for more adequate explanations and interpretations of some of the methods but these are out of the question in a small book of this scope. It is undoubtedly sufficient in content for most laboratory work, and will prove useful to clinicians who wish a small compact work for ready reference to the more recent and widely used laboratory methods

DAVID M GRAYZEL

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## *Editorial*

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### "Who Dunnit?"

It does not take an Ellery Queen or Agatha Christie to discover who was responsible for the unsurpassed mortality record of New York State for August, 1939. Contrary to the impression that advocates of state medicine seek to create, the drop occurred principally in those conditions which are treated by individual physicians rather than by governmental agencies.

As regards infant mortality, for example, in August, 1939, there was less than half the number of deaths from whooping cough recorded in August, 1938. Diarrhea and enteritis also proved less fatal than in the preceding year.

It is a pleasure to report that the mortality from acute and chronic nephritis—important causes of death at all ages—declined to a new low for all months. The appendicitis death rate reached its lowest point in thirty-one years. Mortality from pneumonia was the lowest on record for August, with a drop of 31 per cent from the rate in August, 1938.

With the exception of pneumonia, which has been the subject of a joint campaign by the Department of Health and the medical profession, all the diseases cited are treated almost exclusively by private practitioners of medicine, either in their offices or hospitals or the patient's home. Even in pneumonia, treatment is usually administered by private physicians rather than state medical employees, although the state may furnish necessary therapeutic supplies.

It is interesting to observe that the death rate from tuberculosis, which is more often treated by state agencies than the diseases mentioned above, was one of the few to show a slight increase. This is no aspersion on the competence or industry of the State Health Department. Another month the situation may be reversed, with a greater gain in the conditions for which the government is responsible than in those under the care of independent physicians.

The above rates are quoted not to reflect unfavorably on the Health Department but to dispel the illusion that state medicine is superior to private practice or responsible for all the gains in health in recent years. State Health work is indispensable and, when efficiently and honestly performed, as it is for the most part in New York, can effect vast improvements in the public health. However, it does most good, in proportion to the effort and money invested, when it is confined to its proper sphere and does not conflict with the role of the private practitioner of medicine. As the mortality rates for August of this year show, the independent physician is still an essential, dynamic force for better health. This force should not be dissipated in fruitless competition with the State.

### Stick to the Charge

The United States Supreme Court has refused to pass on the government's antitrust suit against the A. M. A. "out of turn." A decision must be obtained from the United States Court of Appeals for the District of Columbia before the Supreme Court will review the case.

By its refusal to dispense with the decision of the Court of Appeals, the Supreme Court rebuffs the Department of Justice's attempt to depart from customary procedure in its action against the A. M. A. It is reassurance that in the courts, at least, the case will be tried on its statutory merits rather than as a vehicle for reforming medical practice in accordance with the Administration's ideas.

That the antitrust suit against the A. M. A. is merely a subterfuge to frighten the profession into compliance with the Administration's medico-social policies, is again evident in the Department of Justice's statement that a decision by the Supreme Court would "affect the conditions of medical practice throughout the United States." From the inception of this case the Department of Justice has used it as a sounding board for official Washington's medical views, to the extent of departing radically from accepted principles of juristic ethics. In its latest statement, for example, the Department of Justice tries to sway public opinion by hunting that medico-social progress depends on the outcome of this case. In one sense this is partially true—but not in the way the Department of Justice seeks to convey.

If the A. M. A. loses the case, it is likely that "the conditions of medical practice throughout the United States" will change—for the worse—for it will demolish medical ethics and destroy the profession's power to exercise its collective influence for better medical education and higher standards of practice. If the A. M. A. wins,

on the other hand, there will be no cessation of organized medicine's efforts to improve the quality of medical service and make the latter available to all. It is engaged in these efforts not as part of its differences with the Department of Justice but in line with established medical tradition. It will continue to seek the best means of bringing high-grade medical care to the people of this country as long as the government permits it to go on with its work, free from political persecution and bureaucratic control.

### Pregnancy in Diabetics

Pregnancy in diabetics has, until recently, been attended by a high fetal mortality rate, due to spontaneous abortion, premature delivery, stillbirth, or early neonatal death. In the pre-insulin era, the percentage of fetal deaths in diabetic pregnancies was 44 and since the introduction of insulin it has dropped to 38, as reported by the George F. Baker Clinic.<sup>1</sup> One would imagine that insulin would have solved this problem as it did other complicating diabetic situations, and that these high figures are the result of faulty management of individual patients. On the contrary, it is a matter of record that prospective mothers who have neglected the diabetic routine have had successful pregnancies, whereas others who have carefully followed the prescribed regimen have had accidents in late pregnancy resulting in the death of the child.

Based upon the work of Murphy,<sup>2</sup> who suggested the possibility of hormonal imbalance in diabetic pregnancy, and of Smith and Smith,<sup>3</sup> who made a study of hormones in pre-eclamptic toxemia, White, Titus, Joslin, and Hunt investigated the relationship between serum prolactin and the incidence of fetal mortality in diabetic pregnancy. They found, with but one exception, that all of these occurred in those wherein the serum prolactin was above normal. They state that the defense mechanism against this hormonal imbalance is the destruction of the placenta, and as a result the death of the fetus. Control tests for serum prolactin, after the twenty-fourth week of gravidity, will reveal such alterations and help isolate those diabetic patients who present a hazard in regard to the development of pre-eclamptic toxemia.

Where diabetic pregnancy presents supernormal prolactin values in the serum, replacement therapy by estrin and progesterin may restore serum prolactin to normal and aid immeasurably in the delivery of a viable child. The fact that White, *et al.*, have, by this form of therapy, reduced fetal deaths in diabetic pregnancy from 31 per cent

<sup>1</sup> White, P., Titus, R. S., Joslin, E. P., and Hunt, H.: *Am. J. Med. Sc.* 198: 482 (Oct.) 1929.

<sup>2</sup> Murphy, D. P.: *Berg. Gyn. and Obs.* 56: 914 (1933).

<sup>3</sup> Smith, G. van S. and Smith, O. W.: *Am. J. Obs. and Gyn.* 36: 769 (1933).

during 1936-1937 to 6 per cent in 1938-1939, speaks for its efficiency. Particularly it emphasizes the increasing role that endocrinology is assuming in our daily practice. To those who attended the recent Academy Fortnight devoted to this branch of medicine, and who were eye and ear witnesses to breath-taking advances, this editorial comment on another achievement simply emphasizes how much more lies before us in the study of the glands of internal secretion.

## Overtreatment in Syphilis

In the present intensive campaign against syphilis, in which the entire medical profession is taking an active part, there is an important factor which seems to have been overlooked, namely *overtreatment*. The drive to eradicate syphilis, which has brought in its train slogans, propaganda, and statutory regulations, appears to have stimulated a trend toward the *overtreatment* of the syphilitic patient. Despite all criticism to the contrary, this has been accompanied by a more cursory examination of the individual luetic, a lethargy toward investigation into what significance to attach to the positive Wassermann, and a lack of discernment between infectious and noninfectious syphilis from the standpoint of the community.

The arsenical preparations may cause marked disturbances of the gastrointestinal tract, skin, capillary system, and liver. Mercurial drugs are known renal irritants. Bismuth rarely produces severe reactions, although headache, joint pains, and eczematoid eruptions may occur. However, Cormia,<sup>1</sup> in an analysis of his cases, presents us with a prodromal syndrome for overtreatment which covers all antisiphilitic therapy. Nervous instability, uncontrollable temper, insomnia, throbbing headache, fatigue, and loss of weight should be interpreted as signs of unduly prolonged administration of arsenic and bismuth. Bismuth intoxication is frequently evidenced by a chronic, nonproductive cough. Cormia states that the "insidious nature of the symptom complex makes it particularly susceptible to misinterpretation, and many patients have been precipitated into acute mental or physical breakdown by the persistence of misguided therapeutic measures."

<sup>1</sup> Cormia, F. E. Canad Med Assn J 40 445 (1939)

### SCIENTIFIC EXHIBIT

Application blanks are now available for space in the Scientific Exhibit at the Annual Meeting at New York City, May 6, 7, 8, 9, 1940. Attention is called to the fact that applications close on January 1. Blanks will be sent on request to Dr. William A. Krieger, Chairman, Committee on Scientific Exhibits, 103 Hooker Avenue, Poughkeepsie, New York.

# URETERAL CALCULI

## A Review of 350 Cases

C. C. HIGGINS, M D, Cleveland, Ohio

(From the Cleveland Clinic)

FROM a clinical study of ureteral lithiasis it appears evident that the majority of ureteral stones have their origin primarily in the kidney. It is obvious that calculi can form in the ureter only with considerable difficulty, inasmuch as small accumulations of salts are usually readily washed into the bladder by the urinary stream. In the literature, however, in stances are cited where a calculus has developed *ab initio* in the ureter. Such calculi have formed in diverticula or sacculations, the latter being associated with a stricture of the ureter. Even in some of the cases of the latter group, an element of doubt exists as to whether the stone did not originate in the kidney.

### Etiology

As the majority of the ureteral calculi have their origin in the kidney, the etiologic factors associated with renal lithiasis must be given consideration. A review of these factors is not within the scope of this paper, so they will be mentioned but not discussed. It must be stressed, however, that no examination of a patient with ureteral calculi is complete without intensive preoperative study. During the course of treatment the presence or absence of the following must be determined: (1) focal infection, (2) infection in the urinary tract, (3) stasis, (4) vitamin A deficiency, (5) vitamin B deficiency, (6) metabolic diseases, and (7) hyperparathyroidism. It seems evident from clinical and experimental study that no single etiologic factor is responsible for the formation of all stones, it therefore behooves us to ascertain the causative factors in the individual case. Only by their recognition, eradication, or correction can recurrent

formation of ureteral calculus be minimized.

### Age

Stone in the ureter is a disease of middle life, approximately two thirds of the cases occurring between the ages of 20 to 50 years. In this series of 350 cases, the age incidence was as follows: 1 to 10 years, 1 case, 11 to 20 years, 10 cases, 21 to 30 years, 39 cases, 31 to 40 years, 103 cases, 41 to 50 years, 91 cases, 51 to 60 years, 53 cases, 61 to 70 years, 31 cases, over 70 years, 11 cases, age not stated in 11 cases—a total of 350 cases. The youngest male was 9 years of age and the youngest female 13 years. The oldest male was 70 years of age and the oldest female 87 years.

### Sex

It has frequently been observed that a preponderance of ureteral calculi occur in the male sex. Bumpus and Scholl<sup>1</sup> found that 68 per cent of the cases they reviewed were noted in men and 32 per cent in women. In our series, 279 occurred in men (79.7 per cent) and 71 in women (20.3 per cent).

### Side Involved

Ureteral calculi occur with equal frequency on both sides. In this series, 103 calculi were present in the right ureter, 181 in the left ureter and in 6 instances calculi were present in both ureters. Bilateral ureteral calculi are, however, less frequent than bilateral renal stones. Jeanbrau,<sup>2</sup> in a review of the literature, collected 8 bilateral cases in a series of 220 cases of ureteral calculi studied, an incidence of 3.6 per cent. Bumpus and Scholl<sup>1</sup> in a review of ureteral calculi

Read by invitation at the Annual Meeting of the Medical Society of the State of New York  
Syracuse April 25 1939



seen at the Mayo Clinic, reported the incidence as 1.2 per cent, while the incidence in our series is 1.7 per cent.

### Characteristics of the Calculi

The chemical constituents of the calculi are influenced by the presence or absence of renal infection, metabolic diseases, stasis, and hyperparathyroidism. Aseptic calculi are most frequently composed of calcium oxalate, while uric acid calculi may be found in association with gout, or cystine calculi may be associated with a disturbance of intermediate protein metabolism. The two latter types of calculi are observed frequently in urine, the culture of which is sterile. It is also true that in the majority of cases the uric acid and cystine stones are small, round, and smooth, and are usually expelled from the ureter spontaneously. At times the patient volunteers the information that similar calculi have been passed previously. The calculi associated with hyperparathyroidism are usually composed of salts precipitating in alkaline urine. In one case in this series a calculus was present in the kidney, a ureteral stone had passed previously without manipulative procedures, and a co-existing hyperparathyroidism was present, as evidenced by the removal of an adenoma of a parathyroid gland.

In the presence of infection such as the staphylococcus or proteus organism, the calculi are usually composed of alkaline salts, i.e., calcium phosphate and calcium carbonate. This is also true in the presence of an infection due to the colon bacillus, which possesses the power of splitting urea with the resultant formation of ammonia, rendering the reaction of the urine strongly alkaline.

A mixture of salts may be present. The nucleus may be composed of calcium oxalate, which formed when infection was not present, then, if a urea-splitting infection is introduced, the outer layers of the calculus will be composed of phosphates and carbonates.

The size of the calculus obviously varies from that of a millet seed to one of enormous proportions. Heath<sup>3</sup> removed a

ureteral calculus that measured  $6 \times 1$  inches and weighed 65.8 Gm. Joly<sup>4</sup> states he witnessed the removal of a ureteral calculus that was 7 inches long and almost 1 inch in diameter.

A calculus that passes rapidly down the ureter and is expelled spontaneously is usually small, smooth, and round, while a calculus that becomes impacted in the ureter tends to assume a more or less definite shape depending upon the length of time it is retained in the ureter. As a calculus enlarges upward in the ureter, there is a tendency for it to become elongated, and the longitudinal diameter exceeds the transverse diameter. This is especially true of larger calculi that have been present in the ureter for a long period of time. The calculi may also become rough, and in some instances a groove is formed in the stone, thus permitting normal passage of urine into the bladder. At times, faceted stones may be observed, these are usually associated with dilatation of the ureter and the presence of a ureteral stricture.

### Site of Impaction

It has been generally observed that the majority of ureteral calculi become impacted in the pelvic portion of the ureter. This hesitation in the downward progress of the stone in the ureter may be temporary, in which case the calculus later passes spontaneously into the bladder or assistance is rendered by manipulative efforts or, at times, it may require removal by surgical intervention.

A satisfactory explanation for impaction at this location is derived from the study of the anatomic characteristics of the ureter in cadavers. Here it is found that the caliber varies in different portions of the ureter. The points of constriction that occur in the normal ureter are (1) at or just below the junction of the ureter and the renal pelvis, (2) at the point where the ureter crosses the iliac vessels, (3) at the base of the broad ligaments in the female and the vas deferens in the male, (4) at the point where the ureter enters the external muscular layer of the bladder, the so-called juxtavesical

constriction, and finally (5) at the ureteral orifices. Between these sites of constriction the ureter is widened into spindles, the diameter of which decreases progressively downward. Joly<sup>4</sup> states that the average diameter of the abdominal spindle is 10 mm., of the pelvic spindle, 6 mm., and of the intramural ureter, 3.5 mm.

In addition to these observations, it may also be noted that physiologic angulations of the ureter occur at two points: first, at the point where the ureter crosses the iliac vessels and dips downward into the true pelvis, and second, at the pars juxtavesicalis, which presents a physiologic angulation of from 90 to 135 degrees. Undoubtedly these observations explain the incidence of stones at various levels in the ureter.

In this series, 77.4 per cent of the stones were observed in the lower ureter, of these 63.3 per cent were in the pelvic portion of the ureter and 14.1 per cent in the intramural portion.

The positions of the calculi were as follows: right upper ureter in 14 cases, left upper ureter in 16 cases, right mid ureter in 21 cases, left mid ureter in 22 cases, right lower ureter in 128 cases, left lower ureter in 143 cases, bilateral in 6 cases, in the right lower ureter and left lower ureter in 3 cases, right lower ureter and left upper ureter in 1 case, right mid ureter and left mid ureter in 1 case, right mid ureter and left lower ureter in 1 case—a total of 350 cases.

### Symptomatology

The symptoms produced by a stone in the ureter are influenced by the position of the calculus in the ureter, that is whether it is moving down the ureter or is impacted, and also by the presence or absence of infection, and, finally, whether or not the stone is producing sufficient obstruction to produce symptoms of back pressure.

In this series of 350 patients, 210, or 60 per cent, had the typical severe attacks of pain known as colic, while 131, or 37.5 per cent, complained of dull, indefinite abdominal pain, and in 9, or 2.5

per cent, the patients complained of dysuria, frequency, urgency, and strangury.

During the attack of colic it is usually impossible to presume the position of the calculus without roentgen verification. As a general rule, the more pronounced the bladder symptoms, the lower the calculus lies in the ureter. The patient may experience a severe attack of colic followed by expulsion of the stone, or repeated attacks may occur with or without spontaneous passing of the calculus. In this group of cases, 54 per cent of the patients who expelled the calculus did so within sixteen days after their examination at the clinic.

When the calculus is producing symptoms of back pressure, such obstruction is characterized by a sharp or dull, fixed pain in the loin felt in the posterior renal area. In the presence of infection, an elevation of the temperature and chills may occur. During the acute attack nausea, vomiting, and abdominal distention frequently occur, simulating intra-abdominal disease.

When the calculus is lodged in the upper part of the ureter, pain is usually present in the costovertebral angle, and the symptoms are those of renal colic, although the pain may be referred anteriorly to the right or left upper quadrants. If the calculus is lodged in the pelvic portion of the ureter, the symptoms may be referred to the right or left lower quadrants.

In this series, 20 per cent of the patients presented symptoms definitely not referable to the urinary tract, the pain being referred to the upper quadrants of the abdomen in 14 per cent, and in 6 per cent the pain was referred to the right or left lower quadrants of the abdomen.

It was noted that exercise or exertion tended to aggravate the symptoms in instances in which a calculus was impacted in the ureter.

The examination of the urine revealed neither pus nor blood cells in 11 per cent of the cases. Thus, the urine may appear normal.

Microscopically, blood is not as frequently associated with ureteral calculi.

# CLINICAL APPLICATION OF STUDIES IN RESUSCITATION

WILLIAM BRANOWER, M D , New York City

IT is the primary purpose of this paper to plead in behalf of those victims of asphyxia whom the resuscitative measures commonly employed fail to revive

A study of the current literature on the subject of resuscitation and our experimental and clinical experience at the Mount Sinai Hospital form the basis of the recommendations herein suggested. These are presented in the hope that the organization of all agencies dedicated to the saving of life, the utilization of a more efficient technic for artificially ventilating the lungs, and the routine use of adequate supplemental measures to support the cardiovascular system may be instrumental in saving many more lives threatened by asphyxiation.

Success or failure to revive a victim of asphyxia depends upon the degree of asphyxia and upon the efficiency of the resuscitative measures employed to restore the circulatory and respiratory depression. The degree of asphyxia is proportionate to the extent of the trauma that the asphyxial agent inflicts upon the brain and the vital centers. The extent of the cerebral damage is in direct ratio to the potency of the agent and the duration of its activity.

It must be granted at the outset that there is one group of victims in whom the central nervous system has been so intensely traumatized by prolonged and profound asphyxia that the damage is irreparable. These victims have passed beyond life's threshold and no known human efforts can save them. On the other hand, there is that group of victims in whom there is, what is so aptly termed, a temporary suspension of animation. There are no visible respiratory movements, the heart sounds are inaudible, and the pulse is imperceptible. But the vitality of the nervous system has not

been completely abolished and is still capable of recuperation. These victims are often revived by any resuscitative measures, and survive by virtue of the "factors of safety" with which benevolent nature has endowed the animal species.

It is not for these groups that this paper bespeaks. It is for that tragic intermediary group of profoundly asphyxiated victims in whom the respiratory and cardiac centers are almost completely paralyzed and life is at its lowest ebb. Although hope is not completely gone, many of these cases, unfortunately, are usually fatal. These may possibly be rescued from premature death by more efficient resuscitative measures.

Of prime importance for success in resuscitation is the element of time, those ephemeral seconds which elapse from the moment the respirations fail until adequate resuscitative treatment is established.

Yank, Chornyak, Patty, Schrank, and Sayers,<sup>1</sup> in their *Studies in Asphyxia*, present a thorough picture of the neuropathology and blood chemistry changes that rapidly follow asphyxia by carbon monoxide and by atmospheres deficient in oxygen. They illustrate their findings by many photomicrographs of sections of the brains of asphyxiated dogs and rats. The following brief summary of their findings is taken from a review of their work that appeared in the *Journal of the American Medical Association*.

"Two types of degenerative changes were observed in nerve cells, some becoming shrunken and staining diffusely, others showing varying degrees of chromatolysis. In dogs these changes occurred chiefly in the cells of the cerebral cortex, in the corpus striatum, and other basal ganglions. In rats the cortex was much less injured. In both species of

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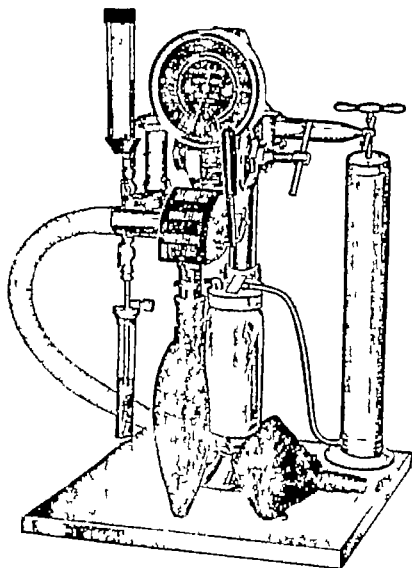


FIG 1 Branower respirator

animals, vascular changes were marked, dilatation of the blood vessels, stasis, and perivascular hemorrhages. Edema occurred throughout the brains with infiltration of leukocytes, particularly in the meninges. The principal changes in the chemistry of the blood were decreased oxygen content, decrease both of the content of carbon dioxide and of the carbon dioxide capacity, and a lowering of pH. The effects of asphyxia by simple oxygen deprivation and by 0.6 per cent carbon monoxide in otherwise normal air were essentially similar. None of the changes in the blood were such as would not be readily corrected when the anoxemia was relieved by treatment with oxygen or a mixture of from 5 to 7 per cent of carbon dioxide in oxygen. The neuropathologic alterations initiated by profound and prolonged asphyxia are not reversible."

These findings emphasize the paramount importance of initiating remedial measures instantly to supply oxygen to

the brain and to remove carbon dioxide from the tissues. It can best be accomplished by immediate and effective ventilation of the lungs. This imperative measure is often inexcusably delayed by inefficient organization of the resuscitating agencies or by lack of adequate facilities.

Life depends as much upon competent circulation as it does upon efficient respiration. Depression or failure of the respirations, if unrelieved, is quickly followed by the ultimate collapse of the circulation. The two are interdependent, and together form a vicious circle. Simultaneous measures to support both must be instituted immediately for effective results.

Wanger and Blackberg,<sup>3</sup> in their *Studies in Revivification*, point out that in asphyxiated dogs artificial respiration alone, without supportive treatment of the cardiovascular system revived some animals but failed to do so with others.

piration is under complete control of the operator, who regulates the rate and rhythm of the respirations and the amplitude of each inspiration and expiration by means of a respiratory valve. Rhythmic inflation and deflation of the lungs, simulating the mechanics of physiologic respirations, may inaugurate that chain of stimuli that motivates the respiratory center and controls reflex breathing conditions. The apparatus is adapted for the administration of artificial respiration through an intratracheal tube, or by a face mask and pharyngeal airway. The apparatus also incorporates an independent suction unit (vacuum pump and receptacle) to maintain unobstructed oral and air passages (Fig. 1).

Unquestionably the most effective method of artificial respiration is through an intratracheal catheter, which should be used in all cases where conditions permit. Unfortunately, however, when the emergency arises, the services of a physician skilled in intubation are rarely available. There is no choice for the lay rescuer, who usually arrives first on the scene of an accident, but to resort to a tight-fitting face mask and pharyngeal airway—the only other practical means of artificial respiration by positive pressure. Potential distention of the stomach can be avoided either by firm pressure upon the epigastrium or by the insertion of a stomach tube.

Any suction to facilitate expiration is unnecessary, even dangerous, and is intentionally dispensed with. Suction closes and obliterates the thin-walled bronchioles before it succeeds in emptying the alveoli of their noxious or poisonous gases. The natural high elasticity and resiliency of the lungs effect their immediate recoil to the collapsed state when the inflating force is removed at the end of the inspiratory phase.

Professor Henderson has written extensively on the subject of carbon dioxide in relation to respiration, and advocates its use as a resuscitative measure in all cases of arrested or embarrassed breathing. Carbon dioxide is undoubtedly nature's best means of stimulating breath-

ing. It increases the tonus of the skeletal muscles, adding to the vasomotor pressor effects. It thus contributes to the return of venous blood to the heart. Cautiously used in very low concentrations (5 to 7 per cent) for a short period, its stimulating effect upon the respiratory center and upon tissue respiration will be beneficial. Long-continued use in high concentration may prove disastrous.

Other respiratory and cardiac stimulants may be used as supportive measures only.

*Strychnine* in small doses stimulates the medullary centers and increases muscle tonus. This is an important factor in promoting tissue respiration, and helps the return flow of blood to the heart. Caffeine and caffeine sodium benzoate are good heart stimulants.

*Metrozole* (dose 1–3 cc ampules, repeat one to three hours) is a powerful heart stimulant and increases its rate. It should be used cautiously, as it may cause convulsions.

*Coramine* (dose 1–5 cc) and *lobaline* (dose gr  $1/20$ – $3/20$ ) stimulate the medullary centers.

*Camphor in oil*, intramuscularly, stimulates the respiratory and cardiac centers. It is, however, irritating to the muscles.

*Picrotoxin* (dose 1–2 cc intravenously, repeat in fifteen to thirty minutes) is particularly useful in barbiturate poisoning. It, too, should be used with caution.

## Summary

This paper makes a plea for more efficient methods of resuscitation by artificial respiration, and advocates more general use of measures to support the cardiovascular system. The following points are touched upon:

- 1 Effect of asphyxia on the brain
- 2 Tenacity to life of the heart.
- 3 Degrees of asphyxia in relation to clinical groups
- 4 Volume and pressure in relation to intrapulmonary pressure and vital capacity
- 5 Effect of efficient artificial respiration on the heart and the general circulation

- 6 Danger of suction as an aid to expiration
- 7 Futility of inefficient methods of artificial respiration
- 8 Limitations of the Schaffer and Sylvester methods.
- 9 The Drinker apparatus
- 10 Intratracheal and face mask techniques
- 11 The role of carbon dioxide as a cardiac and respiratory stimulant.
- 12 Other respiratory and cardiac stimulants

Some of the above points were illustrated by slides and motion pictures, and upon a fresh sheep's lung

285 Central Park West

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## VISIT TO A FIRST AID POST IN LONDON

A visit to an aid post in London under the guidance of the medical officer in charge, as told in the *British Medical Journal* is a lesson in organization and preparedness. This aid post was established in the premises of an evacuated hospital. It includes a storeroom in which not only is everything in its place but what is equally important in these circumstances, the place of everything was plainly labeled in unmistakable lettering on shelf or cupboard so that should some exigency call away the usual guardian, any newcomer could instantly lay hands on what was wanted.

Here were a hundred things to meet every possible contingency—blankets, buckle straps triangular bandages, tourniquets, sanitary towels, dressing gowns, decontamination wraps, picric acid dressings for burns, wool swabs, gauze dressings also such things as soda, soap, candles, matches, medicinal tumblers, safety lamps such as miners used to carry various instruments—in fact, the A to Z of first aid. Even a pile of old newspapers was included this being the best ready-to-hand material for absorbing any pool of blood. A blackboard on its easel announced among other memoranda, what few materials had been requisitioned and not yet supplied. The whole ritual of the treatment of a casualty has been thought out from reception to discharge.

The cases will be received at an entrance which has a double air lock (although gas masks will still be necessary on account of the impossibility of sealing such a building completely against gas) and taken to treatment rooms so arranged as to necessitate the minimum of

travel. Stretcher cases and walking cases are separated and brought together again as seems most suitable. A conspicuous feature was a central table laid out with all the necessary instruments, dressings, and utensils for emergency surgery the whole being covered by cellophane stretched on a box frame so that it could be lifted off instantly without disturbing any article.

After hemorrhage has been arrested pain relieved and any other immediate treatment given, the patients will go to a large and pleasant rest room equipped with beds, couches, and deck chairs. Afterward, near the exit, with the registrar in attendance, the cases will be cleared those with only slight injuries or perhaps having suffered only from nervous shock being sent to their homes while others will be sent to the casualty hospital which is one of the principal London hospitals not far away and others again to the base hospital of the sector down in the country.

The small staff of nursing, nursing auxiliary, and ambulance personnel, all well drilled and instructed with an evident spirit of comradeship and pride in efficiency relieve the tedium of waiting by exercises in which dummy casualties, both walking and stretcher cases, are used. Special attention has also been paid to the staff recreation room and kitchens. The function of aid posts is to save the casualty hospital from a rush of minor and ambulant cases and to provide early treatment in districts where the hospital is at some distance. They may well have a key value in dealing with the results of air attack.

Nicotinic acid will cure chronic pellagra even without a change in the deficient diet that produced the disease. John H. Kooser, M.D. of Hyden, Kentucky and M. A. Blankenhorn, M.D., of Cincinnati report in the *Journal of the American Medical Association* for June 24.

If you have bitter medicine to take rub your tongue with ice and you won't know you aren't dining on milk and honey according to the observations of Dr. Harald Tangal of the University of Budapest, in a recent lecture reported in the *Journal of the A. M. A.*

# THE PROBLEM OF THE SCHIZOPHRENIC AND THE EFFECTS OF NEWER FORMS OF TREATMENT

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SCHIZOPHRENIA is a term used in this country as synonymous with that of dementia praecox. However, in Europe, Bleuler's original definition of schizophrenia is still largely adhered to and includes a much larger group of cases than the American classifications. For this reason, the results of treatment vary, since the European schools include cases that ordinarily are not considered psychotic but merely prepsychotic or schizoid personalities. These people are regarded as queer and not too sociable or talkative. They may have definite ideas on certain subjects or tend to misinterpret or exaggerate real or imagined experiences. However, they do not actively take measures to combat this, and manage to get along fairly well in the world.

Schizophrenia is an indefinite term comprising a number of types of mental diseases that are held together by a few common characteristics. The most outstanding of these is a tendency to obtain satisfaction by a withdrawal from reality and an increasing tendency to substitute the unreal for the real until finally the unreal becomes the dominant and most constant method of approach to any problem. In this fashion various fantasies, poor emotional responses, and abnormal types of thinking become demonstrated. This leads to numerous delusional ideas and unusual forms of conduct. All of these are in accordance with a pattern governed by unreality, which the patient has found to be the easiest method in gaining satisfaction. As a result, there has been an increasing tendency to substitute this form of thought for the usual type in which problems are faced and solved to the best of that individual's ability. There are four common types of dementia

praecox or schizophrenia, the simple, the hebephrenic, the catatonic, and the paranoid types. Of these four types there is a natural tendency for the latter two to show a much greater and more marked improvement than the first two types.

## The Economic Factor

A study of the statistics for mental patients in the entire United States is very illuminating. In 1880 the rate per 100,000 of population for patients present in mental hospitals in the United States was 63.7. This has been rising quite rapidly, as the following figures show: in 1910 the rate per 100,000 was 204, in 1922, 207.5, in 1928, 222.2, and in 1931, 236.1. At the present time it is estimated that the rate has risen to approximately 300. Another way to consider these figures is to study the total number of patients admitted to, or present in, the mental hospitals throughout the United States. In 1926 there were approximately 246,000 patients in mental hospitals throughout the United States. By 1931 this number had risen to almost 300,000. At the present time it is estimated that there are approximately a half million patients in mental hospitals throughout the United States. In other words, to make the problem more startling, over half of the beds of all the hospitals in the country are occupied by patients suffering from mental diseases. This figure does not include patients suffering from mental deficiency and epilepsy who may be confined in institutions.

New York State has, at the present time, the best system of caring for the mentally ill. Not only has this state the largest number of state hospitals for its proportionate population, but in addition

*Presented to the Rochester State Hospital Nurses' Alumnae Association, February, 1938*

they are much better staffed and equipped than the majority of mental hospitals throughout the country. In 1929 there were 46,000 patients in mental hospitals in New York State. By 1930 this number had jumped to almost 50,000. At the present time there are approximately 71,000 patients in mental hospitals in New York State alone. This figure comprises from 15 to 20 per cent of all the mental patients in the United States. The cost of caring for these patients in New York State alone amounts to over \$38,000,000. This figure includes also the care of mental deficients and epileptics. It has been estimated that the cost of caring for 1 patient for a year amounted to \$331 in 1922 and \$373.47 in 1933. This figure varies widely throughout the United States and some states report as high as \$400 or more for 1 patient per year. The total cost for the care of all mental patients in the United States for one year amounts (approximately) to over \$150,000,000. In other words, there is an average cost of \$1 to every man, woman, and child in the United States. The amount in New York State is double this figure.

In studying the statistics for schizophrenia obtained from all mental hospitals in the United States one is somewhat surprised that the problem in the past has not been quite as hopeless as is generally expressed in the majority of textbooks. The number of cases of dementia praecox has been estimated variously as being from 0.4 to 1 per cent of the population. However, the rates for admissions are much more definite. These vary considerably with the part of the country and the residence in rural or urban areas. In this state there are 69.5 first admissions from cities and 42.5 from rural areas, the figures quoted being for the year of 1920 and reported as per 100,000 of population. It has also been calculated that in this state the incidence of dementia praecox is 8 per 100,000 in rural areas, and 17 per 100,000 in urban areas. There are about 12,000 admissions per year to New York State mental hospitals. Of this number, approxi-

mately 2,500 to 3,000 patients are cases of dementia praecox. This same ratio of 20 to 25 per cent of all admissions is more or less true for the entire United States. There are approximately 100,000 admissions per year to mental hospitals in the United States. In other words, about 20,000 or more cases of dementia praecox are admitted to mental hospitals each year. It can thus be readily seen that this presents a very grave problem. This point can be made more outstanding by quoting a few additional figures. Cases of dementia praecox comprise over 50 per cent of all mental patients in state hospitals throughout the United States. At the Rochester State Hospital the incidence is somewhat higher and amounts to 56.5 per cent of the entire patient population.

There has been a great deal of controversy concerning the rate of improvement of cases of dementia praecox. The figures quoted here are possibly the most reliable that can be found in the United States, since they include all the known patient population in this country and are taken from the United States Bureau of Census for 1929 and 1930. The figures quoted comprise the ratio of mental patients discharged per every 100 admissions of the same psychosis to state hospitals. For dementia praecox this ratio in 1930 was 48.4 and in 1929 this amounted to 51.1. In other words, half of the cases of dementia praecox admitted were discharged. Lest there arise instant criticism of this figure, it is readily and quickly admitted that the problem presents a different aspect when readmissions are considered in the same fashion. The ratio of readmissions per 100 first admissions to state hospitals for the same psychosis rises to the startling figure of 33. However, the same figure for readmissions in cases of manic depressive psychosis is 25, although the ratio for discharges is 70 per 100 admissions of the same psychosis. It may be interesting to note what comprises the 1929 ratio of 51.1 cases of dementia praecox discharged for every 100 admissions of this psychosis admitted to a state hospital in 1929. This number comprised



TABLE 1—FIRST ADMISSIONS OF MENTAL PATIENTS TO STATE HOSPITAL FOR ALL U S A  
RATIO PER 100 000 OF GENERAL POPULATION

	Total		Percentage of all admissions for 1929		Percentage of all admissions for 1929	
	State Hosp 1930	All Hosp 1922	Male 1929	Female 1930	Male 1930	Female 1930
All admissions to all mental institutions					100	100
All psychoses	46 8	46 0	44 7	60 8	53 5	52 0
Dementia praecox	10 6	10 0	10 8	14 1	11 8	10 9
Manic depressive	7 0	7 2	7 4	10 4	6 2	6 0
Involuntional melancholia	1 0	0 9	1 0	1 6	0 7	0 6
Psychoneurosis	0 9	0 9	1 0	2 6	0 8	0 7
READMISSIONS PER 100 FIRST ADMISSIONS OF THE SAME PSYCHOSIS						
All psychoses	25 0	25 0	21 0	22 7	22 0	28 2
Dementia praecox	34 2	36 3	28 0	32 3	35 4	30 0
With other somatic diseases	11 0	8 1	7 2	9 1	8 5	12 6
Manic depressive	48 6	48 2	43 2	45 1	40 9	51 5
Psychoneurosis	26 0	26 1	19 9	25 7	27 0	26 2
Involuntional melancholia	22 1	19 1	18 0	20 0	18 8	23 3

5.4 noted as recovered, 36.7 as improved, and 8.7 as unimproved. In other words, the ratio of recovered and improved cases amounts to approximately 42. To make this somewhat clearer, 40 per cent of all cases of dementia praecox admitted are discharged as recovered or improved, and approximately 50 per cent of all cases of dementia praecox are eventually discharged from the hospital. However, it must be admitted that a great many of these eventually are readmitted, as was shown in previous statistics quoted. In New York State the statistics studied for the period of 1917 to 1934 are more or less similar, although slightly lower. Only 2.3 cases per 100 admissions were noted as recovered, but 30.9 were noted as much improved and improved. Thus, about one third of the cases of dementia praecox admitted to state hospitals were discharged as recovered or improved. About one quarter of all admissions to state hospitals comprise readmissions (see Table 1).

The problem presented, therefore, is evidently a serious one. Every year the patient population is steadily increasing. In this state alone there is an increase of over 1,000 patients per year. In the last years the effect of this increase was noted in the annual report of the budget by the Governor, when it was noted that an appropriation had been made for the establishment of another state hospital in New York State to accommodate this ever-increasing number of mental patients. Thus it can readily be seen that

the treatment of dementia praecox is of tremendous economic importance, since these cases comprise over half of the patients housed in mental institutions. It has been estimated that 45 per cent of all cases admitted to state hospitals are due to actual organic defects, and that the remaining 55 per cent comprise the so-called functional psychosis of which dementia praecox forms the largest number. As a matter of interest it may be added that the general recovery rate of all psychoses is 17 per 100 admissions, and the much improved bring this figure up to 38 per 100 admissions.

### Metrazol Treatment

The foregoing has been discussed in some detail because of its importance in evaluating the effects of treatment in cases of schizophrenia. The improvement noted in the past in these cases has been due more or less to general methods of treatment, such as attention to the general physical health, the use of sedative drugs, and various other methods designed to bring the patient into better contact with reality. These comprise, for the most part, occupational and physical therapy as well as the various crafts. In general this method of therapy was more or less similar to that used in the majority of psychotic patients. There have been, in the past, other means used, such as artificial fever and organo-therapy, but these have in general produced little or no permanent improvement.

TABLE 2—RATES PER 100 CASES OF DEMENTIA PRÆCOX UNDER TREATMENT DISCHARGED FROM THE HOSPITAL

	Recovered	Much Improved	Improved	Unimproved	Total
First report of 275 cases treated with insulin in N. Y. State hospitals for 1937	24.4	17.8	7.6		49.8
Actual no. of patients	66.0	49.0	21.0	1.0	137.0
(Much Improved and Improved)					
275 cases without insulin					
U. S. A. 1929 rate	5.4		36.7	8.7	50.8
Estimated no. of patients	15.0		101.0	23.0	139.0
U. S. A. 1930 rate	5.1		34.6	8.8	48.5
Estimated no. of patients	14.0		95.0	23.0	132.0

This table shows the little change in the estimated number of cases that would be discharged compared with the first group of cases (and thus presumably the more favorable ones) treated with insulin in the New York State hospitals. There is, however, a difference in the period of hospital residency.

TABLE 3—RATIO OF PATIENTS DISCHARGED PER 100 ADMISSIONS OF THE SAME PSYCHOSIS

	Total		Condition on Discharge				Unimproved	
	1930	1929	Recovered 1930	Improved 1929	Improved 1930	Improved 1929	1930	1929
All admissions	49.1	49.5						
All psychoses	48.0	47.5	15.9	15.9	24.4	25.2	5.8	6.0
Dementia præcox	48.4	51.1	5.1	5.4	24.6	26.7	5.5	5.7
Manic depressive	60.7	68.2	41.0	39.4	24.8	24.5	3.5	3.4
Involuntary melancholia	48.7	53.7	18.9	20.3	24.2	27.8	5.5	5.4
Psychoneurosis	78.0	80.3	28.4	30.3	41.8	41.5	7.3	7.5

Note: Of all cases of dementia præcox eventually discharged in the U. S. A., 73.8 per cent occur in the first year of hospital residence and 80.4 per cent by the second year.

At the present time, two methods of approach have been investigated with a great deal of enthusiasm, since they apparently show great promise and probably more constant successful results than the methods previously at our command. These comprise, chiefly, treatment with metrazol and the hypoglycemic or insulin treatment.

The first treatment, namely that with metrazol, was first studied and reported by Meduna, and most of the reports to date on this method of treatment have come from European countries. Meduna postulated this treatment upon his observation that apparently there was some type of antagonism between schizophrenia and epilepsy. How true this is—the author cannot state. Nevertheless, Meduna attempted by means of various drugs to produce convulsive seizures, and finally reported a great deal of success with the use of metrazol and, to some extent, with camphor. Should this treatment prove efficacious, it will be of great value because of its simplicity and relative freedom from danger. Unlike the hypoglycemic method, a large number of cases can be treated by a small personnel. The patients require little aftercare, and approximately 20 patients can be readily

treated in a morning by two physicians and probably six nurses or attendants.

The method consists essentially in the injection of a 10 per cent aqueous solution of metrazol intravenously. It is found that the more rapid the injection, the smaller is the dose required and the sooner are convulsions produced. In the majority of cases, the patient can be made more sensitive to this form of treatment by making the urine alkaline for a few days by the use of various drugs, such as sodium bicarbonate. Usually about 5 cc. of metrazol is given intravenously every other day and this dose is increased by 1 cc. with each succeeding injection until the convulsive level is reached. Very seldom is more than 10 cc. required, and as a rule the dose is much lower, but occasionally as high as 16 cc. may be required.

The convulsions following this injection are very similar to those of the grand mal type. They occur almost instantly following the injection and are frequently quite severe in nature. There is an initial tonic spasm that is at first associated with a marked cyanosis, which at times appears somewhat alarming to the observer. It is, however, of relatively short duration and is then followed by a clonic convulsive

seizure of variable duration. At the beginning of this the mouth is opened automatically by the patient and at this stage a gag is usually inserted to prevent the patient from biting or swallowing the tongue. After the convulsions have disappeared the patient may be occasionally excited by stimulation of the body, such as slapping a limb. General observation so far would indicate that the more readily the convulsions are produced, the better is the general outcome. Very frequently a marked improvement is noted after two or three convulsions, but, as a rule, twenty or more convulsions are necessary. Many observers believe that a long series should be given regardless of whether or not the patient has shown good improvement on a shorter course. It is felt that in this way much better and more permanent remissions can be obtained. Occasionally patients complain of this form of treatment because of the unpleasant symptoms associated in the prodromal period or aura preceding the convulsions.

The treatment with camphor alone has generally been abandoned, but in many places camphor therapy is used as a preliminary to metrazol treatment. A 25 per cent oily solution of camphor is injected intramuscularly, beginning at 16 cc and increasing every other day by 4 cc until the convulsive level is reached. Usually less than 50 cc are required. At this point the camphor therapy is abandoned and the metrazol treatment is continued as previously outlined. The effect of the camphor is apparently to sensitize the body and produce convulsions with metrazol with a lesser dose and with greater ease. There are practically no contraindications to either the camphor or metrazol treatment except those usually present in any form of treatment, such as the presence of heart, kidney, or liver disease or a history of previous severe brain injury, especially where the latter is associated with a period of unconsciousness.

In this country there are very few statistics present as to the results of this treatment. For the most part the results would indicate that apparently about 50

per cent of all treated cases picked at random show a good remission. However, when selected cases of less than one half year's duration are treated, the results are much better, and Meduna hopefully predicts an improvement of 80 to 90 per cent in these early cases with a rapid drop in the results of treatment with the duration of the disease. Work in this country so far would appear to confirm these results to a fair degree. So far no deaths have been listed as due to this treatment, and the physiologic effects of this drug have not, therefore, been well studied. However, in the report of an autopsy on a nonpsychotic individual who committed suicide by drinking 100 cc of metrazol, some of the changes have been determined. These appear to consist essentially of a marked hyperemia of most of the vital organs, such as the heart, kidneys, and liver, and especially the brain.

The future of this form of therapy is still in the experimental stage, but many investigators have sounded a very hopeful note that it will prove of great value in the treatment of dementia praecox. The ease of therapy, the small personnel, and the little time required for direct observation of the patient make this procedure an ideal method, should it prove of value. The convulsions produced by metrazol last about three to five minutes, as a rule. Following this there is no necessity for further care or observation of the patient by nurses, since in the majority of cases the patient is able to sit up or get out of bed. This is in marked contradistinction to the next type of treatment, namely the hypoglycemic, where the treatment, instead of extending over a period of five to ten minutes, requires direct observation for from four to six hours by trained nurses and physicians. This is necessary because of the variable rate of onset of shock and the different reactions that the patient may show, especially cardiovascular collapse.

### Hypoglycemic Method

The hypoglycemic method of therapy has been studied to a much greater degree. It was first begun by Sakel, working at

the University of Vienna and at Pötzl's Clinic with the assistance of a co worker Dussik, in 1933. Apparently this also was an accidental discovery. Insulin was being used by Sakel in the usual method of treatment of morphine addiction. Sakel attempted to find out the effects of it on cases of schizophrenia and was surprised to note the apparent improvement obtained. As a result, he and Dussik have continued various experiments and devised a set method of treatment that appears to give fairly consistent results. In his first report of 104 cases treated in two years, he believed that he obtained 88 per cent improvements in the early cases, of which 70.7 per cent were full remissions. In the older, or chronic cases, he obtained 47.8 per cent of good remissions and 19 per cent of full remissions. Dussik states that 8 out of the early 10 cases of paranoid dementia praecox that he treated are still in good mental health after a period of three years. In Sakel's original group of 59 new cases (under half a year), 9 patients showed recurrence of symptoms. Of these, 5 were retreated, and of these, 3 again showed good remissions. Of the older 46 cases of this group (over eighteen months' duration), 6 were retreated. Of these, 1 showed a good remission, 1 a full remission, 2 social remissions, and the other 2 showed little or no results.

The method of treatment is still in the process of standardization, but apparently must be altered to fit the individual cases. At first the patients are given a small dose of insulin every day, usually in the morning on a fasting stomach, and this is gradually increased until the shock level is produced. The initial dose is usually from 15 to 20 units of the regular insulin. No food is given for about four hours. When the shock dose is reached, the succeeding daily doses are kept at this level. Very frequently it will be found that as the treatment progresses, smaller doses of insulin will be required to produce shock. The amount of insulin required to produce shock varies for individual patients and with each patient, being usually anywhere from 70 to 200 units. Shock may occur within a period

of from one half to three or four hours. It is very easily terminated by glucose given intravenously or by means of a stomach tube. In most clinics, one or two days' rest are allowed per week as a rule, when no insulin or other form of treatment is given. In the past, convulsions have been regarded as danger signals, but at the present time there is no very grave alarm felt when they do occur. This probably has been influenced by the metrazol treatment. In fact, many observers to day believe that convulsions occurring in the hypoglycemic state may be actually beneficial.

The number of shocks necessary depends to a great extent upon the judgment of the physician treating the case. Some observers even go so far as to believe that actual shocks are not necessary, since some forms of dementia praecox, especially the catatonic types, have been found to show marked improvement on doses of insulin much below the shock level. Others believe that excited patients should be given larger doses, which produce more marked shock levels, and that the apathetic, retarded cases should be given smaller doses sufficient to produce an increased psychomotor activity. Sakel himself stated he knows of no definite rules for interruption of treatment and also stated that he varies his method of treatment with each case. Most of the European workers in this field believe that psychotherapy, chiefly suggestion, is a necessary adjunct to this form of treatment, but in this country this is thought to be of little value.

The effects of insulin on the patient are quite interesting. In favorable cases, a clear period is produced shortly after the injection of insulin. As the case continues to be treated, this clear phase becomes lengthened and may extend after the treatment has been terminated. In the more favorable cases this good behavior may be present until the next day when treatment is again begun. This clear period is one in which the patient seems to show a good emotional response and a freedom from delusions and hallucinations. At this point a very peculiar and

interesting phenomenon occurs. The patients who had remained clear following their treatment, now, when given treatment, begin to show psychotic periods during their hypoglycemia and a freedom from psychotic symptoms following the termination of their hypoglycemia. As a rule, cases that respond with satisfactory shocks to small doses of insulin usually show the best improvement mentally. Usually, if any improvement occurs, evidence of this is shown in the first five or ten treatments. However, the full course in the average case requires twenty to thirty treatments, and occasionally it may be necessary to increase this number in more refractory cases to over 100 treatments. As a rule, the resulting improvement in these cases is not as good as in those showing an earlier response.

All observers are agreed that the results of therapy, to a large extent, are dependent upon the duration of the psychosis. In early cases, under six months, very satisfactory results have been generally reported, and include as high as 80 to 90 per cent recoveries. There is also a fairly good recovery rate in cases treated under eighteen months, this usually being in the neighborhood of 70 per cent. However, for cases of longer duration the results of treatment rapidly become much poorer as the duration of the psychosis increases. In a series of 118 cases of dementia praecox of over eighteen months' duration reported by Muller, of Switzerland, there were approximately 47 per cent fairly good remissions. In general reports of treatment by European workers they would appear to agree that 70 to 80 per cent or more make good remissions, while older cases show an improvement rate of under 45 per cent. One must, however, be somewhat skeptical of the results in European countries, since the definition of schizophrenia there includes a much larger number of cases than in this country. Many of these in the United States would be considered merely as peculiar, queer, or schizoid individuals and not actually psychotic. In this country a tremendous amount of work is being done and gradually statistics are mounting.

The results of treatment have not been quite as successful as in European countries, but at the same time there is a certain agreement between the figures reported by all workers. The New York State hospitals at the present time have treated a very large number of cases but the results have not been published so far. However, of the first 275 cases treated, a little over 50 per cent were discharged after treatment. Since this report appeared, a small number of these patients have returned with a recurrence of their former symptoms.

Exactly what factors determine the results of therapy are unknown. Some cases that apparently seemed hopeless have responded in an unusually satisfactory fashion. Occasionally a chronic case seems to show a very rapid, permanent improvement under this form of therapy. The statistics at this hospital of treatment administered to patients by other hospital associates indicate approximately 51 per cent improvements and recoveries. According to Sakel, full remissions include those patients who are restored to their former state of efficiency in the social and economic world and who show no signs of psychotic behavior or thought. Good remissions include those who are able to resume their place in the world again and are free from psychotic behavior but who still demonstrate some sign of a change in their personality, which may only be recognized by a physician. Those having defective remissions continue to have some delusions but at the same time have some degree of insight and are able to do work. If they continue to manifest many psychotic signs, such as delusions or hallucinations, but at the same time cause no trouble and maintain their working ability, they are classed as belonging to the group of social remissions. The best results so far have been obtained in cases of paranoid and catatonic dementia praecox.

In some cases the insulin therapy seems to be of greater value, while in others the metrazol produces better results. Cases that have shown poor responses to one method may be further treated by the

other method. Reports have been made of good results obtained by these methods. Some workers have used a routine combined form of treatment in which both insulin and metrazol have been used. The great problem at the present time is to decide whether or not the cases that show good responses to this form of treatment would eventually recover without the specialized forms of therapy. Most workers agree that a large number of these cases would. No one doubts that the metrazol or hypoglycemia methods accelerate the rate of recovery and reduce the duration of hospitalization. This in itself is an undoubted achievement. There appears to be also no doubt that many cases that would not have shown improvement, do so under these treatments. However, so far the results of treatment by either method have not shown any marked increase in the recovery rate over the former one. This is probably due to the fact that both recent and chronic cases are being treated by most workers. If recent cases alone are used, then the recovery rate is much higher than the survey rate of previous years.

The great question to be answered is, are the improvements thus produced permanent or temporary? That is a question that will require years before an adequate answer can be given. Greater attention should be paid to the cases, especially recent cases, that fail to respond to treatment. We know that psychoses of long duration and of certain types, especially the simple and hebephrenic types, do not respond satisfactorily to treatment. However, we do not know why certain apparently satisfactory cases of paranoid and catatonic dementia praecox fail to react. Undoubtedly a previously good personality with a few schizoid traits and fair emotional affect during the psychosis are favorable prognostic signs. The matter of prognosis is still much in doubt. All workers have frequently been surprised by the rapid response of chronic cases who apparently appeared more or less hopeless from the standpoint of recovery.

In the majority of cases seen by the

writer in outpatient clinics following their treatment, it would appear that insight seems to be lacking. They tend for the most part to minimize their former behavior and actions and to accept their present improved behavior without any great curiosity. Before the real results of treatment can be ascertained, a period of years of observation will be necessary. It is quite obvious that the opinion of relatives cannot be accepted, since they frequently try to hide the mental condition of the patient for fear he may have to be returned to the hospital.

As was mentioned in the early part of this paper, almost 50 cases of dementia praecox are discharged every year for every 100 cases admitted. This number comprises over 40 cases in the recovered or improved groups. However, all 50 manage to adjust at home. So far, the effect of treatment has produced an improvement of only 52 per cent. This includes cases that are both of short and long durations. The obvious benefits of the treatment to date have not been so much the greater number of cases of dementia praecox who have improved sufficiently to leave the hospital, but the fact that these patients were enabled to leave the hospital in a much shorter time than they would have had they not had the hypoglycemic treatment given to them. The obvious future mode of attack to compensate for the increasing number of cases of dementia praecox who become permanent residents in state hospitals is apparently to educate the physicians, social workers, and the public that cases can be promised the best results with the hypoglycemic or metrazol forms of treatment only if they are brought into the hospital in an early stage. The tendency at present is, unfortunately, to keep many of these cases at home until such a time as their behavior becomes objectionable or dangerous. In this way valuable time is lost and the probability of cure diminished. There does not appear to be very much doubt that, should the public be trained in this view, the resident population of state hospitals of cases of this type would diminish. At least the pa-

tient will be required to remain in the hospital for a shorter period of time than formerly, and it is hoped that the majority of treated cases may be able to adjust permanently in the outside world, although some of them may require the sheltered protection of the home and family.

A word of warning must be introduced that the treatment is not without danger. The danger to life itself is not as great as would seem evident from the apparent severity of the treatment. The public still regards it as a therapy during which "the patient is shocked almost to the borders of death itself and then by some magic form of treatment is revived again."

Actually the death rate is far below that of most of our more common abdominal surgery. Within the past year, with the accumulation of accurate pathologic study of patients who died under such therapy, some of the effects on the brain and other tissues have been noted. Ferraro and Jervis recently demonstrated extensive changes in the brains of cases who had undergone the hypoglycemic form of therapy. They demonstrated extensive changes in the cytoarchitecture of the cortex from areas of almost complete loss of nerve cells to irregular patchy areas with frequently marked ischemic changes in many of the remaining cells. This was often associated with extensive proliferation of the walls of the blood vessels, leading at times to almost complete obliteration of the lumen. Other workers have demonstrated extensive hyperemia with petechial hemorrhages and at times much more extensive hemorrhages in the brain substance or ventricles. The pathologic effect of metrazol on the brain has not been as extensively studied, possibly due to the lower death rate and the less extensive use of this therapy, as compared with insulin. The chief complications met with are fractures of the vertebrae, humeri, and femurs, as well as dislocations of the jaw and shoulder joints. Polatin, *et al*, found 43.1 per cent compressed fractures of the vertebrae in 51 cases.

## Summary

1 Cases of schizophrenia comprise over 50 per cent of the resident population of state hospitals throughout the United States.

2 Twenty to 25 per cent of all admissions to state hospitals are patients belonging to the schizophrenic group.

3 The ratio of readmissions of schizophrenics to 100 first admissions of the same psychosis, is about 33. In other words, there is 1 case of dementia praecox admitted to a state hospital for every 3 first admissions of this disorder.

4 Between 45 and 50 cases of dementia praecox are discharged from state hospitals for every 100 schizophrenic patients admitted. Of cases of this disorder discharged, over two thirds belong to the recovered or improved groups.

5 The results of insulin and metrazol therapy have been outlined. The results apparently are very similar but sufficient work has not as yet been done on the metrazol treatment. The latter is much simpler in technic and requires less time and personnel.

6 Results of treatment are dependent to a large extent upon the duration of the disease. There are other factors present in the psychosis that have not as yet been clearly determined, except that the paranoid and catatonic groups show the best response.

7 The results of both therapies for unselected cases and acute onset show an average recovery rate of about 52 per cent. Cases of shorter duration, as a rule, show a good and fairly constant improvement rate, varying between 70 and 90 per cent. The permanence of this improvement has as yet to be tested with a lapse of time.

8 So far the results of treatment have tended merely to hasten improvement, since it is felt that most of the cases treated would ordinarily have a fair remission. However, there are a small number of cases who undoubtedly would become chronic if not treated by these methods.

9 Possibly, with the lapse of time and the realization by the laity and profession

that early treatment is essential, the resident population in state hospitals of schizophrenics may be decreased. This cannot be settled for at least five or ten years.

10 At the present time no preference can be given either method. Apparently both produce more or less the same results in the same type of cases, although occasionally a case seems to respond to one method when the other had previously failed to produce any marked improvement.

11 It is important to remember that the efficacy of the entire treatment is still

in the experimental stages. There are promises that indicate a much more rosy future for schizophrenics, but time must elapse to determine whether or not the improvement noted has become a permanent state. This will help the individual to plan for the future should a fair degree of permanence in future good mental health be possible.

12 There is some indication that the hypoglycemic treatment may be of value in other psychoses besides the schizophrenic.

1850 South Avenue

## SECOND ANNUAL 'PAY-YOUR DOCTOR WEEK'

Pay Your Doctor Week, inaugurated last year by California Bank in Los Angeles on a purely local basis, struck a responsive chord in other sections of the country with the result that the week of November 20 to December 2 of this year has been designated as national Pay-Your Doctor Week with banks in all sections of the country sponsoring the movement.

The November issue of *Banking*, official journal of the American Bankers Association, carries an article outlining the idea and suggesting that one bank in each city in the country sponsor and publicize Pay Your Doctor Week.

The article, written by Rod Maclean, manager of the advertising and publicity department of California Bank, suggests newspaper advertisements, radio outdoor advertising, streetcar cards, and bank statement stuffers as means of publicizing the occasion. In addition, Mr. Maclean suggests that everyone engaged in the profession of healing be notified in advance of the date and that a supply of reprints of the ads be made available for statement enclosures.

A year ago California Bank recognized the fairly widespread tendency on the part of the

public to regard doctor bills as obligations that can wait indefinitely at or least until after all other bills have been paid and inaugurated

Pay Your Doctor Week in Los Angeles. Because the movement originated entirely outside of the profession the question of ethics was not involved and the idea found instant favor with the Los Angeles medical fraternity.

The success of the movement was thereafter publicized in several national banking and medical periodicals and California Bank became the recipient of a stream of inquiries from interested banks in all sections of the country. When it became apparent that 1939 Pay Your Doctor Week would be observed in a number of cities scattered throughout the country the machinery for making it a national movement was set up by California Bank.

While the movement is not entirely altruistic on the part of sponsoring banks in that they offer to lend funds for the excellent purpose of paying bills, it does call attention in a striking manner to the plight of many a doctor who is on call twenty four hours a day but who is generally paid at the patient's convenience.

## STATE MEDICINE A POLITICAL FOOTBALL

State medicine invariably becomes involved in politics, making the health of the nation a political football to be used by the particular party or clique that happens to be in control, writes Hubbard Prather Saunders, M.D. in the *Peoria Medical News*.

The whole theory of state medicine or compulsory insurance is unsound economically. There has not yet been a scheme of state medicine put into practice that gives good care to the indigent. They all apply only to those having employment. The fact is, that those who are employed could pay for their own medical care if they put their health before their pleasures

and luxuries. The average family in America today pays more for tobacco alone, more for candy alone, more for liquor alone, than it pays to its family physician. The truth of this statement was very aptly expressed by Congressman Pettengill when he said, 'We might as well look the fact squarely in the face that the drive for state medicine finds its chief motive power in the desire to shift the economic burden involved from the shirker to the worker, the shiftless to the thrifty, the waster to the saver, the unfortunate to the fortunate, the drunkard to the sober, in short to reap where others have sown.'



# SOME UNUSUAL CONDITIONS MET BY THE OTOLOGIST

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**T**HIS paper, as the title specifies, is not an attempt to cover all unusual conditions met by the otologist, but rather an attempt, by citation of a few unusual cases, to show that the otologist must still be observing and careful in his conclusions

In these days there is, in my opinion, a marked decrease in the number of cases of mastoiditis, as compared with the number of such cases seen fifteen to twenty years ago. I believe this condition is the result of gradual education and enlightenment of the public to the fact that the earlier an ear condition is seen by the otologist, the less are serious sequelae and complications apt to occur. It is an unusual thing today to have a mastoid case enter your office with subperiosteal abscess formation, whereas many years ago these cases were not infrequent, and very often a snap diagnosis could be made as the patient entered the office—of course to be followed up by examination. There is another factor that I also believe is the cause of lessening of acute mastoiditis cases: from my experience the otologist today is seeing acute middle ear cases earlier and is doing more paracenteses or myringotomies, thereby offsetting many probable mastoids. We are also being deprived of some of these opportunities by many of the general physicians, particularly the younger men and by some pediatricians doing paracenteses in these early cases.

We are still confronted by the neglected chronic suppurative otitis media cases and especially by that type of patient who, after having a discharging ear for many years, refuses to submit to radical operation. To bring out my point, I am going to cite a case that came under my observation a few days before our last state medical meeting.

## Case Reports

*Case 1*—On May 4, 1938, I saw Mr. A. D., aged 64, at my office. He had the following history: when a youngster, lightning struck a telephone wire, and hearing in the left ear has been poor ever since. About fifteen years ago the patient noticed discharge from the left ear, which has continued off and on since that time. On April 24 he had pain about the left ear and up through the left temple. The day before he came to me he developed frontal pain. He has had dizziness at times for the past four or five months. Examination showed a chronic suppurative condition of the left middle ear and a small aural polyp half filling the ear canal. Salicylic acid in alcohol drops was prescribed to be used in the ear until I could see the patient again. On May 12, after I had returned from the state medical meeting, a fellow otologist notified me by telephone that he had seen this man during my absence, and had him hospitalized and ready for mastoid operation. He turned the case back to me with the report that this man had had considerable pain since seen by me, was drowsy, and at times had intermissions when he would not converse. His temperature ranged between 100 and 102 F. He had been under treatment by his family physician for high blood pressure and myocarditis.

On May 13, 1938, I found the patient in very poor general condition. The mastoid had not been particularly tender but the x-ray showed a cloudy condition in the mastoid cells, so on May 13 I operated, intending to do a radical mastoid. In operating I found a sclerotic mastoid, the outer plate of bone being the hardest I have ever experienced. After getting the mastoid cells gouged out where I found no necrosis, I did find, on entering the antrum, a small amount of serous, dark straw-colored exudate. The patient at this point suddenly collapsed and I had to stop any further operative work, putting in a drain and getting out. This patient showed evidence of cardiac decompensation followed by ascites and pulmonary edema. The patient expired the following morning.

Permission was granted for a postmortem examination of the head. There was found to be considerable necrosis in the pyramidal portion of

the left mastoid bone, and extending from the center of the pyramidal portion of the left mastoid bone irregularly forward under the frontal lobes was a purulent-appearing tract about 2 or 3 mm. in diameter the anterior end of which blended with the meninges under the left frontal lobe. There was a profuse fibrinopurulent exudate throughout the meninges beneath both frontal lobes but the rest of the meninges although somewhat thickened, did not show much evidence of the exudate. The brain tissue beneath the meninges was moderately edematous but there was no evidence of actual abscess to be found. The microscopic diagnosis was fibrinopurulent meningitis, generalized and resolving.

I think this case very conclusively proves a sad result that may occur from a neglected suppurative otitis media and how extensive the meningeal involvement can be, although with so few symptoms. This patient was confined to bed for only about a week and then only because of intense headache more marked on the left side with nausea and a feeling of exhaustion.

Another type of case that concerns us greatly, but may or may not be directly in our field of work, is one of brain tumor. The following description of such a case will, I believe, show why we may be concerned.

*Case 2*—Mr E W., aged 38 was first seen by me in May, 1929 at which time his chief complaint was pain in the frontal regions occurring quite frequently during the past few months. Examination at this time disclosed a polyp in the right nares but the greater importance was attached to the eye examination which showed no abnormalities except refractive error. I prescribed a plus 1.50 sphere with a plus 0.50 cylinder axis 90 in the right eye and a plus 1.25 sphere with a plus 0.37 cylinder axis 90 in the left eye.

I did not see the patient again until November 1934, when he made two visits for a mucopurulent conjunctivitis in one eye, after which I did not see the patient until July 12, 1938. On this latter date he again came in complaining bitterly of frontal headache extending up over the top of the head noticed for the most part each morning.

I re-examined his eyes and again found the eye grounds negative except for refractive error. His refraction had changed considerably over the period of years so that the following lenses were prescribed O D plus 2.25 sphere with a plus 0.25 cylinder axis 105 O.S. plus 2.50 sphere with a plus 0.25 cylinder axis 90. This man's nose was examined and while he had some hypertrophy of the turbinates, there was no evidence of sinus infection. About two weeks later this

man complained of head pains radiating down the neck. He was advised to see his family physician for a general checkup.

On August 6 I was called back on the case by the family physician to do an ophthalmoscopic examination as an aid to diagnosis, as the patient was still complaining of vague symptoms of head ache, and without other symptoms was showing very definite physical weakness. The eye grounds on that date were absolutely normal in appearance. The ears were also normal in appearance and function, but, because of the patient's general weakness hospitalization was advised and the family notified that while we had no conclusive symptoms to go by brain tumor was suspected.

The man was admitted to the hospital the following day and was there less than a day before he expired. At postmortem examination the general autopsy showed practically normal findings. The brain showed a flattened appearance with the right hemisphere larger than the left and shifted to the left side of the midline. On section a cystic-appearing tumor was found in the interior of the right frontal lobe. There was an irregular cavity in the middle of this tumor about 3 cm. from the anterior tip of the frontal lobe in the white matter and extending backward through the basal ganglia and the lateral portion of the right external capsule. This cavity measured anteriorly posteriorly about 10 cc. superiorly inferiorly about 3 cc. with the lateral measurement 4.5 cm. Its walls were irregular discolored, and necrotic in appearance. The cellular tissue was greenish yellow and the swelling in this region had caused moderate compression and distortion of the right lateral ventricle. Microscopic sections showed the tumor to be very cellular and composed of compactly arranged small basophilic oval-shaped nuclei separated by a moderate amount of cytoplasm. Necrosis and pseudorosettes were present. Phosphotungstic acid hematoxylin stains showed the presence of many neuroglial fibrils.

Another type of condition that the otologist sees occasionally and of which there seems to be very little written is one in which sudden vertigo appears, complicating a middle ear condition. This type of condition of which I speak is, I believe, caused by vestibulitis or an irritation or pressure in that region and is not the one that goes on to a generalized labyrinthitis or further complications, but is, after short periods of treatment, entirely cleared up. These cases are no respecters

of age, as the citation of the following few cases will show. These patients are all very apprehensive—the younger the patient, the greater the action of bewilderment, the older the patient, the greater the feeling of impending calamity, such as fear of tumor of the brain or of sudden death.

*Case 3*—The first of these cases is one of a child, 4 years of age, who gave a history of having had a head cold. Two days before, he developed an earache, followed by profuse purulent discharge from the right ear. Although his temperature two days before, according to the parents, was 101 F, they did not consider the condition serious enough to prevent them starting on a train trip from Washington, but when on this particular day the child suddenly developed a dizziness and wobbly gait, he was taken off the train and brought to my office. He was led into the office between two adults to prevent him from falling sideways. His temperature was 100 F, there was no rigidity of the neck, no mastoid tenderness, no exaggeration of reflexes, and his right ear canal appeared normal but filled with a thick purulent discharge. Very little in the line of testing was attempted with this patient, although the Rinne test was negative on the right side and the left ear appeared normal.

This case was hospitalized, the right ear cleansed every three hours, and, outside of catharsis, no special general treatment given except absolute rest in bed. After a few days the dizziness had apparently cleared but the patient was kept in bed for a full week and in the hospital for twelve days, when apparently all symptoms had subsided except for a very slight discharge in the right ear. About three months later I received a letter from the boy's mother stating that he had been perfectly well since leaving the hospital, the ear having ceased discharging, and that there had been no recurrence of the condition.

*Case 4*—A young lady, aged 32, had noticed an attack of vertigo the previous summer after swimming. She also noticed that she seemed to have imbalance by bending her head backward and to the left. She had an attack in August, 1938, and again in September, and her present complaint existed since November 30.

There was no history of discharge from either ear, nor of earache. Her general health had been good. Examination of her ears when seen by me on January 10, 1939, disclosed the appearance of a chronic catarrhal otitis media in the right ear with the drum dull in luster and slightly retracted. The left ear appeared nor-

mal. In the right ear the watch test was 12 inches, the Rinne test negative, and the Weber-Schwabach test referred to the right ear. In the left ear the watch test was 30 inches and the Rinne test positive. Eustachian catheterization did not produce much relief with one treatment, but after the second treatment a week later she reported having relief of her symptoms for about a day. She was treated weekly for four weeks the periods of absence of symptoms lengthening after each treatment until after the fourth treatment she reported no further symptoms. She was, however, given two more treatments at intermissions of two weeks, at which time her hearing had improved to 28 inches with a watch in the right ear, the Rinne test had become positive in the right ear, with the Weber-Schwabach test uncertain.

*Case 5*—A woman, aged 40, in which there was a history of discharge from both ears years ago but which had been dry until an attack of grippe the previous week, during which the right ear had begun to discharge three days before she came to me. She was complaining of generalized head pain but the symptom of vertigo, with a tendency to fall to her right side, was the alarming symptom to the patient. An acute recurrent suppurative condition presented itself from the right middle ear. She was extremely hard of hearing, with both drums showing large perforation, the right drum, of course, being red but markedly retracted, the left very dull and markedly retracted. The Rinne test was negative in each ear, and the Weber-Schwabach was uncertain.

She was put to bed, and after five days the vertigo had disappeared. Ten days later inflations were started in my office at weekly intervals where, after six treatments by catheterization, the patient claimed her hearing was as good as before her attack, meaning that she could again hear conversation and could hear the telephone and door bell, which she had not been able to do during her recent illness.

*Case 6*—A man, aged 74, was sent to me in November of last year to have his eyes examined because his family physician had said the eyes were the cause of his dizziness. This man had to be helped into my office to prevent his falling to the left side. His only complaint other than the tendency to fall was a burning feeling in the left side of the head, which may or may not have been imaginary. The eye examination of this case showed a very slight degree of myopic astigmatism, which I did not believe could account for the symptoms. Therefore, I insisted on examining his ears. The picture here was one of a chronic catarrhal otitis media in each

ear with both drums very dull and considerably retracted. The hearing with a watch in the right ear was 1 inch, in the left ear 2 inches. The Rinne test was negative in each ear and the Weber-Schwabach test referred to the left ear. There was in this case, a very slight degree of lateral nystagmus but only demonstrated with extreme lateral involvements. Nystagmus was not demonstrable in the above cases.

I did a eustachian catheterization in this case followed by the same treatment four days later. There was dissatisfaction evidenced in this case because I did not agree that there was definite evidence of cerebral involvement, so this case slipped from my hands to those of another who thought there might be cerebral involvement, and to still another examiner who thought as I did that there was no evidence of cerebral involvement. Finally this man was placed under the care of a neurologist, who hospitalized him for observation. That point was a feather in this man's hat because with absolute rest in bed this patient was discharged after two weeks in the hospital and his vertigo had cleared up. These latter statements are made on the basis of information furnished me by a member of the family whose members still retain friendship for me.

This case is not conclusive but is added here

because of the age of the patient and because of the predominant symptom in this type of case of sudden vertigo which after a comparatively short period of time seems to clear up.

Audiometer tests were not done in the above type of cases because I believe, as I stated at the beginning, due to the patient's apprehension, that we do not get the proper cooperation and because I believe that the less this type of patient is annoyed by examination, the better will be the relations between the patient and the doctor.

### Discussion

Dr James M. Dunn, *Schenectady New York*.—Dr Carroll's paper covers a very interesting and instructive range of subjects.

He is to be congratulated upon the unique manner in which he again stresses the importance of a complete history, an early and accurate diagnosis, and the prompt establishment of proper remedial and prophylactic management. The importance of viewing every case as a very distinct clinical problem and yet adhering to a definite comprehensive examination routine is admirably emphasized in this paper.

### SULFANILAMIDE AND TUBERCULOSIS—A WARNING

Recent reports that sulfanilamide has proved beneficial in the treatment of tuberculosis draw a warning from the National Tuberculosis Association. The Association calls attention to a report in the current issue of *The American Review of Tuberculosis* on sulfanilamide and tuberculosis.

Here the serious consequences which might ensue should tuberculosis sufferers take sulfanilamide compounds for the treatment of this disease are emphasized by Dr H. J. Corper, research director of the National Jewish Hospital of Denver, Col. Dr Corper and two associates prepared the report on the basis of findings at the Denver Hospital.

Results of their tests do not mean that a tuberculosis patient who has developed pneumonia or streptococcus infection cannot use the drugs as prescribed for those conditions, but that the use of the drug should be confined to treatment of pneumonia and streptococcus infections.

The tests have demonstrated, said Dr Corper in summarizing the survey, that the utmost caution is required in evaluating the action of the drugs in tuberculosis.

"When given for a short time to man and animals, sulfanilamide and similar drugs are not evidently poisonous, but, if given over an extended period, become profound blood and cell poisons.

"It is these effects which have led to the ex-

traneous deductions. The animal that is poisoned from the prolonged use of large amounts of sulfanilamide and allied drugs such as sulfa pyridine, cannot produce tubercle cells in certain organs as readily as ordinary tuberculous animals do and so two things happen.

"In the first place, a deception occurs in that these organs only appear to have less tuberculosis; secondly, but ever more important since the tubercle cells are the ones that actively fight tuberculosis and help maintain the health of the individual not treated with sulfanilamide, the injury of these organ cells as well as the blood cells actually is harmful to the patient, rather than an aid in fighting his tuberculosis.

This should serve as a timely caution to save the tuberculous from unnecessary injury from the use of drugs until they are exactly tried out in the research laboratory on test animals and by competent analysts. This is especially urgent in an involved and intricate disease problem such as tuberculosis presents and in which all the phases must be thoroughly understood before conclusions as to the value of the drug for man can be drawn.

These compounds (sulfanilamide and sulfa pyridine) do not affect tuberculosis but injure body cells the reacting cells.

Maurice L. Cohn, Ph.D. and Clarence Bower, Ph.D. collaborated with Dr Corper in his research findings.

# *Symposium on Surgical Treatment of Chronic Arthritis*

## SURGICAL TREATMENT OF CHRONIC ARTHRITIS

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**A**RTHRITIC patients, wearied by a long, slowly progressive illness, usually accept with enthusiasm any proposed surgical attack on their diseased joints. However, they must not be led to expect too much. It has been my habit to explain carefully the mechanics of the proposed procedure and to stress the expected disagreeable aspects, such as the possibility of pain in a contemplated arthroplasty or the awkwardness of a fused knee joint when sitting in a streetcar or theater. A full discussion of the various procedures that can be employed and their effect on walking, sitting, lying, or working often helps the patient to make a choice between a fusion and an arthroplasty.

The classification of chronic arthritis of unknown etiology into proliferative and degenerative arthritis is justified on clinical and pathologic grounds and furnishes a reasonable method of approach to the problem of treatment. All cases, however, cannot be readily classified, as there are mixed and borderline types to add to the confusion.

### **Proliferative Arthritis**

Among the common synonyms for proliferative arthritis are rheumatoid arthritis, atrophic arthritis, Type 1 arthritis, and chronic infectious arthritis. Proliferative arthritis usually occurs in the younger age group. In 25 bedridden cases at Montefiore Hospital, 8 began before the age of 20, and 11 began between the ages of 20 and 30. Rheumatoid arthritis is characterized by multiple joint involvement with progressive limitation of motion and final ankylosis in the severe cases. The clinical course suggests an infectious process, and the streptococcus

is under suspicion as an etiologic factor, but neither of these points has been proved. During the acute stage, characterized by acutely inflamed joints, fever, and a rapid sedimentation rate, surgery is not indicated. Even after an apparently quiescent stage has been reached, one cannot be certain that it is not merely a remission until many months or several years have passed.

*Synovectomy*—However, if the disease is clinically quiescent, local pathologic conditions may be improved by the procedure advocated by Swett<sup>1</sup> and others—that is, removal of a large part of the thickened hyperplastic synovial membrane. Besides improving local conditions, the operation may delay or stop the cartilage destruction from within the joint, but the surgeon must remember that the connective tissue elements of the bone marrow are similarly attacking the joint cartilage from the diaphysial side and that this may continue after synovectomy. While the knee joint lends itself particularly to synovectomy, the operation is applicable to other joints, a swollen, chronic metacarpophalangeal joint can often be markedly benefited both in function and appearance by synovectomy.

*Capsulotomy*—Often a joint that has been impaired by infectious arthritis retains an appreciable range of motion, but the motion is at such a sector of the arc that it cannot be utilized. This is often true at the knee joint, and the flexion contracture can be corrected by cutting the posterior capsule and lengthening the shortened muscles and tendons, as advocated by Wilson<sup>2</sup> and others. By capsulotomy the range of motion is usually not increased, but it is transferred to a

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more efficient position. The operative release of contracted soft parts is often indicated in other joints, such as the hip and ankle.

*Osteotomy*—Joint deformities can also be corrected by osteotomy of the bone near the joint, but this necessitates long fixation in plaster, which is to be avoided if possible in rheumatoid arthritis.

*Arthrodesis*—Deformity can be corrected at the same time that a joint is fused by resecting a wedge from the joint and fusing it in a satisfactory position. Joint fusion is a sure way of eliminating pain and is the method of choice in any joint where motion is not very important, such as the acromioclavicular joint or the tarsal joints. In rheumatoid arthritis there is a tendency to joint fusion as the pannus from each side of the joint becomes confluent, and osteoid tissue, often followed by bone or cartilage, is deposited in the granulation tissue. This tendency to ankylosis can be hastened by immobilization in the position of election. However, there is often sufficient motion to cause pain even after immobilization in plaster, and operative fusion is necessary. There is usually little difficulty in obtaining early surgical fusion in joints affected by rheumatoid arthritis.

*Arthroplasty*—One can often restore movement in joints stiffened by rheumatoid arthritis by an arthroplastic procedure, but the tendency to ankylosis usually reasserts itself, and eventually very little motion is left. One of the important requirements for a successful arthroplasty is a healthy musculature to move the newly formed joint, and this is usually lacking in joints ankylosed by rheumatoid arthritis. However, the stiffness of certain joints, such as the temporomandibular joints or both hips, is so disabling that a surgical attempt at obtaining motion should be made. Two stiff hips combined with a stiff spine preclude sitting. The hapless patient must at all times walk or stand or lie. Recently, Smith Petersen<sup>14</sup> has reported the successful use of vitallium as an interposition material in arthroplasty, and Wheeldon<sup>15</sup> has used cellophane for the same purpose.

These substances are said to cause little or no reaction in the tissues, and one or both may prove to be the long sought for, ideal interposition material.

*Pseudoarthrosis*—Either an arthroplasty or some form of pseudoarthrosis, such as the Jones<sup>2</sup> procedure, will enable the patient with stiff hips and a stiff spine to sit, even though walking may be more difficult. The Jones procedure ensures mobility but sacrifices stability. The hip joint is approached from the lateral aspect, and the trochanter is detached with a chisel. A large portion of the femoral neck, including its base, is resected, and the great trochanter is nailed to the distal raw surface of the proximal fragment, leaving the joint undisturbed. There are other methods of producing a pseudoarthrosis of the hip joint that are also satisfactory as to mobility and are occasionally surprisingly stable.

*Joint Resections*—In the hospitalized bed- or wheel-chair ridden arthritic such as I have to deal with at Montefiore Hospital, stiff shoulders counteract the serviceability of stiff elbows, even if fused in a satisfactory position. In these cases elbow joint mobility is to be sought above stability, although both are desirable. Albee,<sup>4</sup> in his indications for arthroplasty of the elbow, states that bony atrophy or osteoporosis adds to the difficulties of the operation and that the important muscles that control the joint should be free from extensive infectious or traumatic scarring. For these reasons, at Montefiore Hospital we have performed resections of the elbow rather than arthroplasties, and the results have been gratifying both as to mobility and stability. Several patients have had their existence made tolerable by their ability to turn pages in a book that is properly supported on a rack, tune in a radio, and smoke a cigarette.

We have closely followed the technique of Ollier,<sup>6</sup> the great French surgeon of the last century. At operation, at least 1 inch to 1½ inch of the humerus, 1½ inch of the ulna, and ¾ inch of the radius should be resected. The operation appears to be a mutilating one, and the tendency at first is to resect too small an

amount of bone. In several cases it was necessary to reoperate and remove more bone to obtain satisfactory motion. Arthroplastic procedures or joint resections of the fingers are seldom successful in traumatic cases even in the hands of masters like Koch<sup>6</sup> and Kanavel, and should not be tried in rheumatoid arthritis.

*Sympathectomy*—A more general surgical attack on rheumatoid arthritis has been attempted by sympathetic ganglionectomy and trunk resection. Fourteen years ago, following the visit of Hunter and Royle, the operation was hailed as a panacea for a wide variety of pathologic conditions. I recall the enthusiasm of a ward of arthritic patients to whom I proposed the procedure and the satisfaction of the first case chosen, a stout female whose knee joints were involved. A prominent neurosurgeon and I spent two and a half hours searching for the abdominal sympathetic trunk through a transperitoneal incision. The patient died two days later, and although an autopsy failed to reveal the cause of death, no further sympathectomies for chronic arthritis were performed on that ward. Most authorities have abandoned the use of sympathectomy as a surgical treatment of chronic arthritis. Henderson and Adson<sup>7</sup> feel that sympathectomy has a place in the treatment of chronic arthritis only when the joint symptoms are complicated or aggravated by vasospastic phenomena, such as cold, wet, pale, cyanotic extremities. They found it of little value in advanced cases or cases in which the infectious process was still present.

### Osteoarthritis

The second great group of chronic arthritis of unknown etiology is osteoarthritis. Among the synonyms for this disease are degenerative arthritis, hypertrophic arthritis, and Type 2 arthritis. In certain locations it has special names, in the hip it is called *malum coxae senilis* and at the distal interphalangeal joints, Heberden's nodes. The clinical and pathologic picture does not suggest infection,

and most authorities feel that the process is degenerative. The joint changes following an injury or a congenital abnormality of two joint surfaces, so-called traumatic arthritis, are probably in the same group. Although attempts have been made, notably by Allison and Ghormley,<sup>8</sup> to classify traumatic arthritis as a separate entity, it is usually considered a subvariety of osteoarthritis.

Degenerative arthritis is essentially a disease of advanced years in which the joints become stiff and painful, but there is no tendency to ankylosis except in the spine and sacroiliac joints. Osgood<sup>9</sup> states that even complete immobilization for long periods of time will not result in ankylosis. Often the amount of motion is negligible, but it is sufficient to cause severe pain. The weight-bearing joints, especially the hips and knees and lumbar spine, are commonly involved in this condition. Because the hips are so often involved, a bewildering array of surgical procedures has been devised for this joint. They may be classified as (1) Arthrodesis, (2) Osteotomy, designed to change the weight-bearing area, (3) Acetabuloplasty, (4) Arthroplasty, and (5) Drilling.

*Arthrodesis*—Fusion operations are indicated if only one hip is involved. Even if the good hip shows some x-ray evidence of osteoarthritis, this can be ignored if the joint is clinically satisfactory. Marked involvement of the lumbar spine by osteoarthritis will also militate against a satisfactory result from fusion. Occasionally, however, pain in the back is actually relieved by a successful arthrodesis. The hip joint is a difficult joint to fuse, and I have seen a gradual recurrence of the painful flexion adduction deformity in cases that I thought were satisfactorily fused. Since Watson-Jones<sup>10</sup> published his use of the Smith-Petersen nail to obtain fusion at the hip, I have used it as an adjunct with excellent results. I think that a properly inserted Smith-Petersen nail after a fusion operation will lead to rapid union in almost all cases. Immobilization, which is only partial even in a well-applied plaster spica, is definite and

complete with the nail. Arthrodesing operations are also indicated in painful osteoarthritic joints at the lumbosacral area, in the acromioclavicular joint, in the knee joint, and in the tarsal joints.

**Osteotomy**—If the patient refuses fusion or if both hips are involved, changing the site of weight bearing by an osteotomy of the upper end of the femur often gives satisfactory relief of pain and at the same time corrects the flexion adduction deformity. Osteotomy is not to be contemplated as a bilateral procedure. A careful preoperative planning of the site of the osteotomy, checked by x rays with metal markers in place, will prevent embarrassing surprises when the postoperative x rays are examined.

**Acetabuloplasty**—Smith-Petersen<sup>11</sup> devised a plastic procedure on the acetabulum to relieve pain in osteoarthritis of the hip. He and others report excellent results both from the standpoint of mobility and the relief of pain, but more time must elapse before this procedure can be accurately evaluated.

**Arthroplasty**—Various types of arthroplasty, both with and without the interposition of fascia or membrane, have been tried in osteoarthritic hips. The results vary, but generally the amount of pain after operation is roughly proportional to the amount of mobility obtained. I think a fused hip is more satisfactory than a movable hip with pain, assuming that the other hip, the knees, and the lumbar spine are essentially normal.

**Drilling (Forage)**—In 1932, a French orthopedist, Graber-Duvernay,<sup>12</sup> reported 10 cases of osteoarthritis of the hip in which pain had been relieved by drilling the neck from the lateral aspect of the femoral shaft and inserting a bone peg. Although his explanation of the improvement was involved and fanciful, based on the theory of interrupting a vicious vasomotor circle, his results have been confirmed by numerous observers, especially in France and the Scandinavian countries. Many surgeons merely drilled the neck and did not use the bone peg advised by the original operator. Graber-Duvernay stated that pain was relieved within a few

days or weeks of the drilling. But one cannot expect effective revascularization to occur in a short time. A patient whose hip I drilled was discharged two months after operation unrelieved, but three months later she returned to the follow up clinic and stated that her pain had almost completely disappeared. Further observations must be made before this method can be properly evaluated.

## Summary

I have of necessity omitted much in a brief review of this kind, and have made didactic statements of my opinion on controversial topics. Several of the individual procedures I mentioned briefly will be more thoroughly evaluated by men particularly qualified in each. A surgeon who undertakes the surgical treatment of chronic arthritis must not be easily discouraged. It is only too easy in any individual case for a conservative physician to enumerate all the contraindications to surgery, because we are dealing with chronic invalids whose tissues are damaged. The attempt at surgery should be made as long as we are reasonably sure that the patient will not be made worse and that there is a fair chance of improvement. We must realize that we are dealing with a disease of unknown etiology<sup>13</sup> and can at best give only symptomatic relief.

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# THE PRESENT STATUS OF ARTHROPLASTY

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**T**HE occupation and social status of the patient, as well as his temperament, are often determining factors in deciding whether or not to operate to restore motion to bony stiff joints. When the hip and knee on the same side are both ankylosed, the advantages of arthroplasty are much increased.

Murphy in 1904 reported his technic for arthroplasty of the hip, and in 1906 Hoffa reported 5 arthroplasties of the hip (3 by Rochet and 2 by Nelaton). From that time on, a slowly increasing number are found in the literature. In fact, in my clinic, arthroplasty has become very frequent and so dependable and well regarded that whenever doing an operation to arthrodese a joint, if that case is a possible favorable case for future arthroplasty, the arthrodese operation is so planned as to make way for the future mobilization.

It is preferable not to disturb peri-articular structures or surrounding muscles unduly by obtaining the bone graft material locally. This is particularly so at the hip, where it is not desirable to disturb, more than absolutely necessary, either its kinesiologic lever, of which the great trochanter is a part, or the important abductor and weight-bearing muscles attached to it. Therefore, bone graft material for arthrodese purposes is never taken from the trochanter.

At the knee, for the same reason, the patella is no longer employed as a source of arthrodese material. After its diseased portion has been removed, the remainder of the patella is left as intact as possible. To the patient with bony ankylosis of the knee, a functioning joint with adequate mobility and stability is his objective in seeking an arthroplasty operation.

Up to twenty years ago, my own atti-

tude concerning arthroplasty to produce mobility in bony ankylosed knees was one of great conservatism, both because of personal experience and because of observations that I had made on results of others. Either those patients had insufficient motion to satisfy them, or, more often, the degree of mobility was satisfactory but lateral instability was present and proved so troublesome as to offset the advantages of mobility. Whether or not the surgeon follows anatomic contours in modeling the new joint does not interest him, so long as the joint functions. It has been found by Allison and Brooks that it is absolutely impossible to duplicate experimentally, or in surgically constructed joints at the knee, the normal gliding of the articular bone surfaces. This being true, and as attempts to approximate the contour of the normal are so often followed by lateral instability (consisting of lateral buckling due either to capsular laxity or to sideslipping of one joint surface on the other because of irregular wearing of joint surfaces), in 1920 I devised a technic, based on well-known mechanical principles, that ignores the normal contours of the joint and affords the maximum of mobility and still preserves the stability.

In separating the tibia from the femur and in the bone modeling, a wide V-shaped incision replaces the usual attempts to follow bony contours when viewed anteriorly. The convex wedge-shaped plane surfaces of the femur fit accurately into the concave wedge-shaped plane surfaces of the tibia. Weight-bearing forces the apex of the wedge-shaped end of the femur so firmly into the tibia that the danger of lateral instability is practically eliminated and a definitely improved prognosis is afforded. When the newly modeled joint surfaces are relieved from

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weight bearing, they recede from each other, allowing free motion. In fact, this laxity and space between the elements of the new joint can be much greater because of the wedge modeling. In the case of the hip, the same stabilizing objective is brought about in an entirely different manner. Inasmuch as the hip joint is of a "ball and socket" contour, its stability in all directions is provided wholly by muscle action, the most important of which is that of the muscles inserted into the greater trochanter, or kinesiologic lever, which must be of adequate length, even if it is necessary to elongate it by operative means.

### The Position of Ankylosis

Extreme flexion is unfavorable to arthroplasty because it makes the technic very difficult and necessitates extensive removal of bone and the sacrifice of that portion of the tibia and femur that has the largest diameter, thus tending to produce lateral instability. If the knee is markedly flexed, it is advisable to perform a preliminary supracondylar osteotomy.

Ten years ago, I would have said that ankylosis in extension was best left alone but, in view of the constantly improving results from arthroplasty, I have become much more optimistic. The condition of neighboring joints should also be considered. If both knees are ankylosed, arthroplasty on one is definitely indicated, or, if the knee and hip on the same side are ankylosed, there should be slight reason for hesitation.

To women, the awkwardness of ankylosis is more annoying than to men, and in young women, ankylosis often proves a distinct handicap socially. For both men and women, the nature of their profession or occupation will often determine how essential mobility of the knee is to them.

In few operations is the absolute cooperation of the patient so essential as in arthroplasty. However perfectly the technic may be executed, a good functional result cannot be obtained unless the patient submits with patience, courage, and in-

telligence to the long postoperative treatment, which is likely to be slightly painful in the first stages and is always tedious.

All persons of weak will or of excessive nervous instability and those who have a litigation interest in not getting better, must be eliminated if the surgeon does not wish to risk unnecessary failures.

### Age and Sex

Age and sex are not vital factors, although patients under 18 years are sometimes difficult to manage after operation, the operation should never be done on young children, and patients over 50 have not the same degree of resistance. It has been stated by some authors that men are more favorable subjects than women, but this has not been my experience.

### Knee Technic of Choice

The knee is approached by a U shaped incision in the skin and soft parts from the inner and outer aspects downward to just below the tubercle of the tibia. The concavity is upward. This U incision gives the surgeon absolutely uninterrupted access to all parts involved in the formation of the new joint, and is, therefore, distinctly superior to the lateral approach. Also, it does not interfere with the important "extensor apparatus" above the knee, as is likely to happen with the inverted U incision or lateral approach.

The technic of arthroplasty should be so designed as to allow passive and active motion at the earliest possible moment without danger of separation of important motor structures. Because the free gliding of the soft structures of the "extensor apparatus" just above the knee joint is absolutely essential to free motion and active control, the severing and resuturing of these structures, as in the inverted U incision, are to be avoided, for, if they are severed, not only is there danger of union being insufficient when one wishes to start exercise and passive motion as early as two weeks after operation, but, because of the cross-section severance, there is danger of adhesions at this point between the gliding intramuscular

is no disadvantage to the use of mole skin for traction. Otherwise the double spica cast is used just the same.

Traction is continued by means of Steinman nail for at least a month and a half after the plaster has been removed and the massage begun. Even after the patient goes home, the traction is maintained throughout the night, although during the day the patient is allowed to walk with crutches, without weight-bearing, the latter not being permitted until at least two months after operation. If one is fearful of losing the motion, traction with locomotion may be kept up for a longer period through the day by a Thomas knee brace for the knee or the hip.

Pain does not usually persist after the first series of postoperative physiotherapy treatments. The muscles gradually regain their ability to contract, even if they have been inactive for years, the reflexes reappear, the different types of sensation—superficial and deep, and sensation of position—are at length re-established. The nearthrosis possesses still another characteristic: once established, it is never the seat of effusion or of swelling. It seems to be resistant to all hematogenous arthritic processes.

### Hip

To be classed as a good result in arthroplasty of the hip, there should be a minimum amount of voluntary flexion of at least 35 degrees. Everything being considered, a hip that possesses 35 degrees of painless, active motion is far superior to a stiff hip. Not only should the hip joint have motion to allow proper sitting, but it should be painless and function in locomotion, particularly in bearing the weight of the body. It is far better to have a stiff, immobile hip than one accompanied by weakness and lack of satisfactory weight-bearing or abduction. One author goes on to say that "the more nearly the joint is similar in size and shape to the original joint, the greater will be the stability." This statement should be challenged. A ball-and-socket joint situated at the hip cannot have, per se, a desirable

amount of motion and still be stable, because passive stability could only result from the capsule acting as check ligaments to motion, and this, in itself, would prevent adequate motion. Desirable stability with a large range of motion must come from active muscle control.

If this statement, used as a premise, is true and if it is possible to maintain this muscular control, then the careful modeling with the head of the femur tightly filling a deep, newly made acetabulum (with the difficulty of securing a free range of motion incidental thereto) is not necessary or desirable. The deeper the new acetabulum is made, and the corresponding femoral head fitted to it, the less the chance of securing a good range of motion. Therefore, in selecting cases for arthroplasties of the hip, one should be sure that the muscles about the hip are reasonably preserved. Formerly, it was my practice to rule out cases in which there had been extensive shortening of the neck of the femur, either from bone destruction or from a telescoping of the head and neck of the femur into the pelvis, for the reason that even if the abductor muscles were intact one could never expect satisfactory function of active abduction because the trochanter-femoral neck lever would be still further shortened by the modeling of the new-formed hip, and thus furnish inadequate leverage for the abduction or weight-bearing muscles to pull upon.

Because of the very satisfactory experience with the mechanical setup brought about by elongating the kinesiology in a large number of cases of ununited fractures of the hip, I began twenty years ago to apply the same principle to cases of arthroplasty where, because of bone destruction, the trochanter-neck lever is practically absent or much shortened, and a satisfactory result by arthroplasty alone not possible. Therefore, in recent years, the destruction of the head and neck of the femur (with telescoping) has not been a deterrent influence to me in selecting cases for operation, in that I have found, in doing an arthroplasty, that a hip joint could be

modeled with the head of the femur much smaller than the acetabulum, with sufficient fascia and fat to fill in the inter-spaces, and that the mechanical influences brought about by the provision of leverage action for muscle control not only prevented dislocation, but allowed active abduction and satisfactory weight bearing (Fig 2)

If it is found that the leverage action of the neck of the femur is not sufficient a bone fragment, consisting of the tip and the outer surface of the trochanter of varying length (approximately  $3\frac{1}{2}$  inches), is separated with a broad thin osteotome, with the insertion of the abductor muscles intact, and swung outward from the shaft of the femur from 20 to 35 degrees by producing a greenstick fracture at its lower end. Into this triangular space, between the remaining portion of the shaft of the femur and the bone fragment, a square or rectangular graft from the crest and outer table of the ilium is fitted. This graft may be supplemented by the fragments of cancellous and cortical bone, also obtained from the ilium. The kinesiological lever restoration may be done at the same time as the arthroplasty, or before, as the surgeon thinks best.

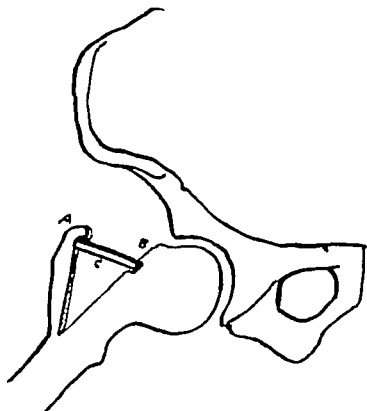


FIG 2 Rectangular graft c in position holding trochanter laterally to increase leverage action, thus providing for stability of the hip and better weight bearing and abduction function

and other muscles. Active flexion is present in all movable elbows following arthroplasty, whereas active extension is rarely restored, because of inadequate olecranon leverage. The original technic that is presented herewith possesses not only the advantage of restoring olecranon leverage with active extension and stability, but it also affords the freest access to modeling the joint (Fig 3)

#### Author's Technic

The approach is by a skin incision on the posterior aspect of the joint, beginning just over the tip of the olecranon and extending proximally about 4 inches directly over the superficial posterior crest of the ulna. The skin and subcutaneous tissue are dissected laterally. The olecranon and about three and one-half inches of the posterior crest of the ulna are developed, care being taken not to disturb either the attachment of the triceps muscle or the ulnar nerve. In some instances, when infection or severe trauma has destroyed or shortened the olecranon process, the triceps muscle is developed to its bony insertion at the posterior surface of the ankylosed joint, this, with its bony attachment as a part of the

#### Elbow

Although stability at the elbow may not be as important as in a weight bearing joint, a fair degree of stability is most essential to certain movements, particularly active control in extension. A man cannot wield a hammer or saw with a flail elbow, the extension of which depends on gravity, and lifting a weight above the head, whether it be books or bricks, is an important movement in everyone's daily routine, depending quite as much on stability and control at the elbow as on mobility.

In a remade elbow, the most certain way of gaining the desired stability and muscle control is by providing a sufficiently long bone lever for the triceps to pull upon. In this way, active extension is restored in full as a balancing influence or antagonistic pull to that of the biceps

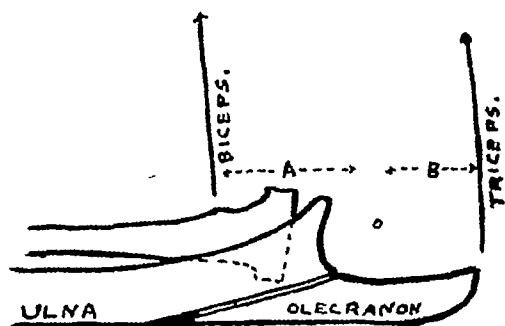


FIG 3 Diagram showing mechanical advantage of sliding olecranon process posteriorly, thus providing a lever for the triceps to pull upon where this is absent

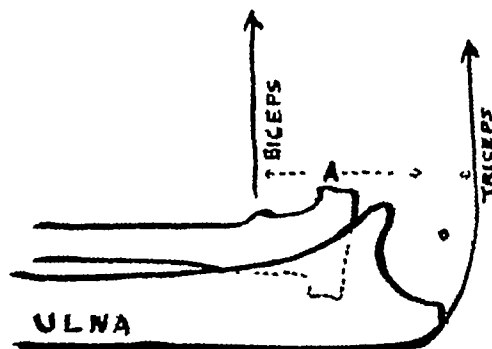


FIG 3A

larger bone fragment, is later turned back as follows

With a single motor saw, held at an oblique angle, cuts are made in the proximal portion of the ulna, converging both in cross section and longitudinally, and extending distally from the olecranon process or insertion of the triceps muscle about  $3\frac{1}{2}$  inches. The fragment thus formed, including the proposed new olecranon process, is then turned upward with the triceps muscle attached to its proximal end as a hinge. Thus, complete exposure is obtained for modeling the new joint from the posterior and lateral aspects.

The soft parts to the side are then dissected from the bone, and the ulnar nerve is either meticulously avoided or dissected out and held laterally by a tape.

Sufficient bone is then removed to permit free flexion and extension of the ulna and radius upon the condyles of the humerus, and to allow adequate space to receive the fascia-fat graft, which will line the new joint. Care should be taken to so mold the joint surfaces that a free and smooth range of motion is allowed. This should be tested out by putting the arm through the full range of flexion and extension.

With the arm flexed, this aponeurotic tissue is sutured in place, care being taken that every vestige of raw bone surface is covered on both elements of the newly made joint. The arm is then extended, and the olecranon-ulna fragment turned downward into its groove and slid far

enough proximally and posteriorly to furnish a long posterior lever for the full extension and stabilizing action of the triceps muscle (Fig 3).

One need not fear displacement of the olecranon-ulna graft, for, because of its length and the inlay method of insertion, the union of the fascia and soft parts drawn over the graft at the time of closing the wound will prevent such displacement, even before bony union has taken place. Therefore, one need not wait for solid bony union before beginning active and passive motion and physiotherapy, as would be necessary if the olecranon had been merely severed.

In general, one may say that the contraindications to arthroplasty of the elbow are few. In view of the great inconvenience and awkwardness resulting from a stiff elbow, the patient should be given the benefit of mobility.

### Following Tuberculosis

With regard to the advisability of operating on a bony ankylosis due to tuberculosis, there is the greatest difference of opinion. I believe that arthroplasty should be approached with due conservatism in such cases, but not pessimism. If, in the roentgenograms, which should be taken in several planes, there are evidences of diseased pockets or cavity formation, or areas of extreme osteoporosis, the case is unfavorable, but if the bone structure appears fairly uniform and there are no other unfavorable conditions, arthroplasty should be successful. Some of my most brilliant results have been in

able conditions of the fluids and tissues, which include factors of resistance or susceptibility toward various diseases. More conspicuous are the inherited conformation and carriage of the body as a whole. There is considerable evidence to show that the tall, slender body type with the accompanying visceroptosis is often associated with atrophic arthritis. The connecting link here may reside in the greater liability of this body type to gas trolintestinal toxemia, or it may be on account of the inadequate use of the nutritive intake. In either event, synovectomy may serve a useful purpose if, through the relief of pain or by the restoration of motion, the patient is enabled to assume the corrective postures necessary to the compensation for these adverse conditions.

Fatigue, both mental and physical, plays an important role in atrophic arthritis through its effect on the sympathetic nervous system. This is so manifest that it is generally agreed that a cure of this disease never can be obtained without adequate provision for rest to compensate for previous abuses and to lay a foundation for other therapy. If it is admitted that pain and worry are potent causes of fatigue, then it is logical to suppose that synovectomy may be helpful in removing this pathologic state that is acting as an etiologic factor.

Sugar metabolism has been shown to be altered in the arthritic state. This is thought to be due to the disturbance of muscle function. Here again is found resulting from the disease, a pathologic state that assumes etiologic significance to whatever extent it contributes to the continuance of the disease. Since the restoration of the function of the muscles is one of the most dependable effects of synovectomy, it seems likely that by this means beneficial correction of the sugar metabolism may result.

Focal infection is generally credited with an important etiologic role in the development of atrophic arthritis. I, unfortunately, made certain postulations in my original papers, concerning the possibility of secondary foci of infection in

the diseased joints. It now appears to be clear that these postulations were erroneous, at least so far as they relate to any of the familiar forms of infection, and they should, therefore, have no place in the considerations leading to the use of synovectomy.

### Pathology

Synovial Proliferation—Agreement is general that the first joint change in atrophic arthritis is found in the synovial membrane. This change takes the form of proliferation of the membrane, which produces tabs and fringes projecting into the joint cavity, and these frequently take on a pannus structure that spreads over the articular cartilage and covers it like a blanket. The pannus, lying in close contact with the cartilage, first produces erosion and, eventually, destruction of the cartilage. These changes, histologically, present an initial inflammatory reaction with a cellular response composed largely of plasma cells, leukocytes, small numbers of eosinophiles, and small round cells. As the disease becomes older, signs of resistance and healing appear in the form of fibrosis and, significantly for the surgeon, this process sometimes goes too far. The pannus is composed largely of granulation tissue, which may be vascular and infiltrated with lymphoid and plasma cells, at other times it is composed of dense fibrous tissue with few blood vessels and little cellular infiltration. Fibrous tissue also forms between the synovia, the pannus, and the articular cartilage thus dividing the joint cavity into compartments and eventually obliterating it. Obviously, in these circumstances, there is abundant reason for the use of such treatment as is available to terminate these processes before the damage by fibrosis becomes irreparable.

Muscular Fibrosis—A variant form manifests itself in the muscles that activate the joints by more extensive changes than the commonplace atrophy of disuse. In this form the muscles are the seat of great pain and disability throughout the course of the disease. In such instances a type of fibrositis occurs with an over-

growth of fibrous tissue in and between the muscle bundles. When this occurs it is difficult to restore an adequate amount of function in the muscles, and it is probable that the continued loss of function has an influence upon the process within the joint. In such cases it certainly would be futile to do a synovectomy. It is likely that it is in this type that synovectomy has been followed by poor results

*Capsular Fibrosis*—In contrast with the primarily synovial form of atrophic arthritis there is another variant in which the predominant changes occur in the joint capsule where they are marked by an extensive increase in fibrous connective tissue. This process goes on until the capsule, at first thickened, eventually is converted into dense fibrous tissue effectively depriving the joint of motion even before the inner structures are seriously damaged. The prototype of this form is found in gonorrheal arthritis.

*Atrophy of the Bone Ends*—There is a third form of variation in which the changes do not follow the pattern of the more usual predominantly synovial type. In this there occur early signs of lessened density in the bone ends, and punched out areas appear on the articular surfaces. While it is not determined whether this process is an essential part of the pathologic process, or simply a result of the disease, it is known that in numerous specimens an increase in the connective tissue exists in the marrow spaces, and new blood vessel formation is present in the bone ends. The upward extension of such granulation tissue invades the articular cartilage, and ankylosis is the final stage of the condition.

These four forms of pathologic change are individually clear and, once this is understood, it is not too difficult to differentiate them clinically. Trouble develops, however, when more than one type exists in a single joint. Thus, while it is easy to separate the predominant pathologic changes into those which, in order of frequency, are marked by (1) synovial proliferation, (2) atrophic changes in the bone ends, (3) capsular fibrosis, and (4)

fibrositis of the local muscles, it is not clinically easy to determine which one of these four is predominant when they co-exist. As a rule, the joint pathology during the early part of the disease is manifestly one or the other of the four basic types. The confusion usually does not occur until the late stages of the disease. Because of the long period of time during which these pathologic concepts have not been translated into terms of therapy, it probably is fully as well that more five-year studies have not been made. Until these concepts are clinically applied, the necessary definition of the conditions of the study will be lacking and the results will be, therefore, indeterminate. At the outset of an investigation into the merits of synovectomy in the treatment of atrophic arthritis it should be understood that the operation is best applied to the type in which the joint changes primarily and predominantly are synovial.

Another source of confusion lies in the ambiguity of referring to the stage of the disease rather than to the stage of the local process. The course of the disease is rarely orderly and is usually variable within wide limits. Frequently terminal ankylosis exists side by side with early synovial changes in other joints. Not all joints are simultaneously involved. At the outset the disease characteristically produces changes in one or several joints, sooner or later these joints may clear up or become ankylosed, and sometime during or after this occurrence other joints may be affected.

The optimum stage for a synovectomy is a matter for individual decision in every case. In general, there is no object to be gained if resolution of the local proliferation is satisfactorily taking place. On the other hand, there is every reason for a synovectomy at any time during the course of the arthritis if it is apparent that irreparable damage otherwise is certain to occur. This is true provided that the process has not gone too far in the capsule, the articular cartilages, the bone ends, or in the muscles. This optimum period may be early in the disease in some joints

and at varying stages in other joints. The point is to be determined by the exact condition in the particular joints.

### Clinical Guides

Certain clinical guides help to indicate the most suitable type and stage of atrophic arthritis for the use of synovectomy. The first point to consider is the predominantly synovial nature of the process. This is evidenced by effusion, palpable synovial thickening, coarse crepitation, generalized tenderness, flexor spasm, and painful movements. The x ray should show synovial thickening, little, if any, diminution in the joint space, and slight or no atrophic changes in the bone ends. The quality of the crepitus is significant, and it is important to distinguish between the soft, squashy feeling caused by tabs and fringes and the brittle, grating feeling due to the rubbing of the bare ends of the bone. It is also significant to know the cause of the restriction in motion. The determining type of limited motion is that which is chiefly due to the protective muscle spasm, and this must be differentiated from the restriction caused by fibrosis of the capsule and the muscles.

Among the many constitutional aspects, the following are important. The patient should present the customary signs of illness in the form of moderate secondary anemia, moderate temperature changes, disturbed nutrition, a somewhat disproportionately rapid pulse, a consistent increase in the sedimentation rate and some degree of prostration.

Before a synovectomy is undertaken it is important that the recognized means of nonoperative treatment should have been aggressively applied. Such means include the removal of foci of infection, appropriate diet, gastrointestinal hygiene, suitable regulation of the basal metabolic rate, endocrine medication as indicated, provision for an adequate vitamin intake, and corrective body mechanics. Rest for the patient, both of body and mind, is of fundamental importance, and the same also applies with equal force to the need for rest and support for the joints. The

latter, most often omitted, is perhaps the most effective of all local treatment. It appears to gain its results by relieving the muscle spasm and thus improving the circulation and the nutrition within the joints.

Presumably the need for resorting to such procedures as synovectomy will be less when the above means are more generally employed. My impression is that this is already apparent in those clinics where the treatment is conducted on such inclusive plans. However interesting hobbies may be, there is no place for them in the management of so complicated a disease as atrophic arthritis. In this connection it is interesting to recall the following quotation from my original article: "This operation cannot, I believe, take the place of other forms of treatment, and it should not be resorted to on any wholesale basis."

### Case Report

The following case report is given to illustrate by prolonged observation some of the features that may be expected from a well-organized five-year study on a group of patients. N B, a domestic servant, was first admitted to the Hartford Hospital in August, 1915. Chief complaint: rheumatism. Present illness began in 1911 with inflammation in the midjoint of the right ring finger. After two years the process appeared in the right wrist. In another six months the left wrist became involved. Six months before her admission in 1915 (four years after the onset of the disease) the same condition started in both knees and in both ankles. Tonsillectomy was done shortly after the latter joints were affected. When I first saw the patient she presented the usual picture of a severe chronic polyarthritis involving the hands, wrists, ankles, elbows, and knees. The wrists were fixed but the knees showed marked effusion and only such restriction in motion as was caused by painful spasm—that is to say the process in the wrists was in the terminal stage while it was only in its beginning in the knees. However on account of the knees the patient was bedridden, helpless for lorn and alone in a strange land, emaciated and anemic. Besides all of this there was the ankylosis of the wrists to indicate what was likely to happen to the knees unless something could be done to prevent it.

The idea of the possibility of benefit from synovectomy in such cases had for several years



been in my mind and here at last seemed to be a chance to try it. The patient was frankly told that I never had seen or heard of such a procedure, but she felt that nothing could be worse than her present state. On that basis we went ahead. The right knee was synovectomized in September, 1915, and five weeks later the left knee was similarly treated. Two weeks after the latter operation she was able to get up from her bed and to begin the use of crutches. She left the hospital in November and, gradually increasing her activities while her strength picked up, she was able to resume her work six months later. By that time the anemia had been overcome, her weight was again normal, the stiff wrists were not painful, and the knees were freely movable. In other words, she then seemed to be on the road to a long period of good health. This was borne out by the subsequent history. She married at a relatively young age, had three children, and, in spite of the hardships of small income and hard living conditions, she remains well. It should also be said that in spite of her insistence that the left knee should be opened on several occasions, she continues to have excellent function in both knees.

### Synovectomy in Chronic Hypertrophic Arthritis

If synovectomy is to be useful in hypertrophic arthritis there obviously must be present some degree of synovial involvement, but it is evident from pathologic studies that synovial changes are relatively rare in this form of arthritis. In fact, there may be no such changes that are recognizable, and if they do occur they are late in the course of the disease, and then they seem to be the result of the earlier essential pathology of the joint. In such changes the membrane is found to be thickened where it is thrown into folds at the periphery of the joint, and here papillary masses of granulation tissue and dense edematous tissue may be found. Under such circumstances there is a basis for doing a synovectomy for the relief of pain and the improvement of the local mechanics.

In such instances a partial synovectomy is all that is required. The benefits of acetabuloplasty may be explained by the relief afforded by the removal of tabs and fringes that are constantly being pinched by the overgrowths of bone at the

joint margins. I am not able to speak from wide personal experience in this type of lesion because I never have discovered many patients suffering from uncomplicated hypertrophic arthritis who seemed to be suitable for synovectomy—besides which I have been deterred by the fear that I might become overzealous in the use of synovectomy.

In addition to the group in which late synovial changes occur in hypertrophic arthritis, there is another group in which an atrophic arthritis becomes superimposed upon a long-standing hypertrophic arthritis, almost invariably during a quiescent stage of the latter process. In this group the characteristic pathology of atrophic arthritis is found in the synovia and here there is a logical reason for considering the use of synovectomy on its essential merits, and my own experience indicates that this group is particularly favorable.

The differentiation of these clinical variants requires careful study directed toward the local condition of the joints and the general condition of the patient. Hypertrophic arthritis ordinarily causes little increase in the synovial fluid, and distention of the capsule is therefore lacking. Unless there has been a recent trauma, the presence of swelling suggests the addition of another process. Another characteristic of hypertrophic arthritis is stiffness after rest and relatively little pain on use. When pain on use is marked, it is likely that something else has been added to the hypertrophic arthritis.

The muscles that activate the joints show early wasting in atrophic arthritis, while in the hypertrophic form they are only at late stages and after marked limitation in motion has occurred. Severe grades of the hypertrophic form are most often confined to a single joint and almost never involve the wrists, the metacarpophalangeal, or the metatarsophalangeal joints. Most patients with hypertrophic arthritis are well nourished and vigorous appearing, in contrast with the anemic, undernourished appearance of the primarily atrophic type.

## Case Report

The following case is briefly reported in illustration of an instance of the superimposition of an atrophic arthritis on the hypertrophic form. B. C. B., the captain of a fishing vessel was a large-framed, obese man of 61 who complained of lame knees of ten years duration. He said that for the past three years following a sharp exacerbation marked by severe pain and swelling his disability had been extreme. On examination the knees showed marked bilateral varus considerable synovial effusion coarse crepitation, and painful restriction of motion. The x rays showed an extensive hypertrophic arthritis but, on account of the sudden change in the nature of the disability and because of the clinical signs it was felt that here was an instance of the addition of an atrophic process on a previously existing hypertrophic form. For this reason the patient was subjected to bilateral synovectomies. The conditions in the two knees were almost identical. They consisted of increased synovial fluid and the entire membrane was grayish red in color thickened, and covered with villous fringes. There were also numerous floating islands of organized exudate, the semilunar cartilages were partly disorganized, there was some erosion of the articular cartilages, and the joint margins showed extensive hypertrophic changes. The diseased synovia was removed, together with the semilunar cartilages and a large spur from the upper inner margin of the tibia.

The patient made a splendid recovery and came back to report at the end of two years largely to express his gratitude. At that time he was found to have been able to carry on his usual work the preceding summer and to have enjoyed once more his customary good health. His knees presented no swelling and except for five degrees of loss in extension in the right knee there was no limitation in motion.

## Summary and Conclusions

So long as chronic arthritis remains uncontrollable by medical means there will continue to be a useful field for orthopedic surgery in the treatment of these diseases. The operation of synovectomy appears to have a place in this field, the exact limitations of which are not generally understood because of the complex nature of the problem. From the experience thus far gained it is apparent that the application of synovectomy depends upon

the nature of the particular form in question. The following conclusions are warranted as guides to the use of synovectomy.

1 In properly selected cases the operation can be expected to overcome certain pathologic processes, both local and general, which, although they result from the disease, assume etiologic significance because they help perpetuate the disease. Such conditions are fatigue, pain, restriction in joint motion, interference with corrective postures and with local circulation, and disturbance of sugar metabolism.

2 Proper selection of cases is based upon the nature of the predominant type of the local process and upon the stage of that process. Those processes that are primarily and predominantly synovial in origin and in extent are favorable. Those local inflammatory conditions that primarily and predominantly involve the bone ends, the articular cartilages, the joint capsule, and the muscles are unfavorable.

3 The stage of the local process during which synovectomy is most effective is when it is apparent that resolution is being delayed and that permanent damage will inevitably result from its continued presence. The maximum benefit may be expected if the operation is done before the cartilages are ulcerated and before the bone ends have undergone extensive atrophic changes.

4. Further insight into the exact place of synovectomy may be expected from the study of large groups of cases thus treated under the conditions outlined above.

5 In hypertrophic arthritis, partial synovectomy is indicated when there is present an unusual amount of synovial proliferation at the articular margins, and sometimes when an atrophic process has been superimposed upon a quiescent process.

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# ARTHRODESIS IN CHARCOT'S KNEES

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CHARCOT's joint, synonymously known as tabetic arthropathy, neuropathic arthritis, and Charcot's disease, is a disease principally of the weight-bearing joints, characterized by swelling, instability, and absence of pain.

There is gross disorganization of the tissues in the nature of an exaggerated degenerative arthritis and a fragility of the cartilage and bone, associated with fractures and attempts at ineffectual repair. It occurs predominantly in males with *tabes dorsalis*.

The cause of these trophic bone and joint changes is not definitely known, but is most likely a combination of fragility and loss of pain sensation of the affected parts. The absence of pain sense is not always complete, but is probably in sufficient effect so that minor traumas go unnoticed and there results a misuse of the damaged joint structures. This in turn leads to progressive destructive change, the effect of repeated unnoticed traumas.

In the cases presented in this series, pain was a major symptom in 1, a minor complaint in 3 others, and absent or not complained of in 3 instances. Instability was the disabling feature in 5 cases, and, in these same 5, swelling of the knee was also a major feature.

It is interesting and important to evaluate the part trauma plays in Charcot's disease. Trauma is without question a major factor in the development of such a joint, but its responsibility as an agent of initial etiology is not so easy to dispose of. In injuries of a compensable nature, the correlation of a given injury to the onset of the process is quite difficult.

In one of our cases, a specific injury was definitely associated with the onset of

disability for the patient's job (Case 6). In another, the history obtained indicated that something gave way with a break at the knee, causing the patient to fall. Immediate x-rays revealed a fracture. In spite of weeks of splintage, she was not able to walk after this incident, except with crutches (Case 1). In a third case, the patient told of a fall, three years before, at which time he thought he fractured one of his knee bones, but had no treatment except rest in bed (Case 5).

It is stated by Reed and Emerson<sup>1</sup> that a Charcot's knee requires five years to become disabling, so that any trauma rightfully claimed as an etiologic agent is thus placed beyond the statute of limitations. While it is agreed that a considerable time elapses in those completely anesthetic knees, and in which disability results from instability (Case 4 twenty-six years from time of diagnosis), there are others not completely anesthetic, in which disability may antedate the phase of instability (Case 3 seven months from onset of symptoms).

The treatment of these cases by operative fusion apparently has not been attended in a general way by enthusiasm or success, from the few cases reported in the literature. One gathers that the reasons for this are the difficulty in obtaining fusion and the tendency for the wounds to break down and become infected. Thus, the cases of Charcot's disease of the knee which, by reason of their deformity and instability, are unable to wear supportive apparatus, must needs be faced with an existence of extremely limited activities.

In 1931 Steindler<sup>2</sup> reported 3 cases of Charcot's disease of the knee treated by arthrodesing operations, 2 resulting in

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FIG. 1

FIG. 2

FIG. 3

FIG. 1, CASE 2 Roentgenogram of left knee before operation.

FIG. 2, CASE 2. Roentgenogram of left ankle at time of the operation on left knee.

FIG. 3, CASE 2 Roentgenogram of left ankle nine months after knee fusion

apparent bony fusion and 1 in fibrous union. All continued to wear braces. In the same year Cleveland and Smith<sup>3</sup> reported 3 successful knee fusions out of 4 cases. Cleveland<sup>4</sup> reported an additional case in 1935. Soto-Hall<sup>5</sup> reported 1 case of successful fusion after preliminary drilling of the bone ends five weeks prior to operation. Drilling a number of holes through the compact bone ends also occurred to this writer as a possible aid, and has been carried out in the last 3 cases here reported, not as a preliminary measure, but as part of the arthrodesing procedure. Quite recently Cleveland<sup>6</sup> summarized their complete experience with these joints. They have operated upon 6 knees with 2 failures, and 1 ankle, which was successful. He feels their more recent experience is less fortunate than that reported in 1931.

On the Orthopedic Service at Bellevue Hospital, 6 cases of Charcot's disease of

the knee joint have been adjudged suitable for arthrodesing operations since 1932 and have been so treated.

### Operative Procedure

A longitudinal incision, described by Krida<sup>7</sup> as the general utility incision, has been used in preference to the usual U shaped approach as a circulatory consideration. In one case where the size and deformity called for wide bone excision, a U-shaped approach was used.

In all cases an attempt has been made to oppose flat surface bone ends in an attitude of 15 to 20 degrees flexion.

When well enough preserved, the patella has been used to bridge the joint line or to fill defects. Sliding grafts from the femur have been used in several instances and the drilling of the bone ends has been commented upon.

A plaster of paris spica was the type of immediate splintage used, and maintained



FIG 4, CASE 2 Roentgenogram four and a half years after fusion.

for at least twelve weeks. This was followed by a knee cast or brace until solid clinical and x-ray fusion could be demonstrated.

If, in addition to the Charcot's joint, there are symptoms of neurosyphilis indicating the desirability of antiluetic therapy, it certainly should be employed. In the event of a negative blood and spinal fluid, it would seem wise to recognize the Charcot's joint as an indication that the neurosyphilitic process had not been arrested, and to consider at least mild courses of treatment. In the present

series of 6 cases the blood Wassermann was positive in 2 and negative in 4. The spinal fluid Wassermann was positive in the same 2 cases and in 1 additional instance.

### Case Reports

*Case 1*—D R., a 58-year-old housewife, born in Russia. Symptoms referable to right knee for one year. The onset was that of an inflammatory process for which she received physical therapy. During this period she felt something give way with a break at the knee, causing her to fall. X-ray revealed a fracture, which was treated by splints. Subsequent to the fall she was unable to walk without the aid of a crutch.

Chief complaint at the time of operation: instability.

Luetic history for seventeen years. Treatment: injections in arm and hip twice a week for seven years. General physical status good. Pupils fixed. Knee jerks present. Blood and spinal fluid Wassermann negative. Colloidal gold curve 0012100000.

Right knee: painless, moderate swelling, and bowleg deformity on weight-bearing. Marked instability. No other Charcot's lesions.

Operation on April 20, 1932. Marked degenerative changes with cavitation into medial tibial tuberosity. Postoperative convalescence good, excellent relationship of bone ends by x-ray. Wound healed normally.

Result: failure—at no time was there any clinical or x-ray evidence of attempts at ankylosis. Last observation, twenty months following operation, revealed that she was walking with a brace and that the instability was unimproved.

*Case 2*—R T., a 58-year-old male steward, born in Austria. Symptoms in left knee for five weeks. Onset was that of an inflammatory process, redness, swelling, and temperature of 102 F. Complained of sharp pains, intermittent in character, in both legs as well as in the left knee (probably lightning pains). After the inflammation at the knee subsided, he found he could not walk. This was his chief complaint at the time of operation, and was due to instability.

Luetic history for thirty-eight years. Considerable treatment by mercury and salvarsan at various times. General physical status fairly good. Pupils: loss of light reflex. Knee jerks absent. Blood Wassermann 1 plus, spinal fluid Wassermann 4 plus. Colloidal gold curve 1122331000.

Left knee moderate swelling marked in stability and advanced degenerative changes (roentgenogram shown in Fig 1)

No other Charcot's lesions.

Operation on February 21, 1934 Marked destructive changes particularly in medial tibial tuberosity where destruction to a depth of  $1\frac{1}{2}$  inches was encountered. The patella was used to fill this defect. Postoperative convalescence satisfactory, wound healed normally. Intensive antiluetic therapy was administered by the Department of Dermatology and Syphilology. This treatment has been continued at appropriate intervals for a slowly progressive tabo-

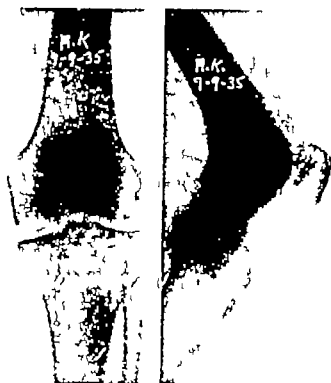


FIG 6 CASE 3 Roentgenogram of left knee on September 9 1935 showing advance in process

little pain at onset. Pain became progressively worse. It was sharp, cutting and definitely localized in one spot, just medial to the patella. The limp became progressively worse.

Chief complaint at time of operation pain only on walking accompanied by a grinding inside the joint.

Luetic history for twenty years. Malarial therapy in 1932 and a negative blood and spinal fluid since that time. General physical status good. Pupils normal. Left knee jerk and ankle jerks absent.

Left knee mild swelling principally due to effusion within the joint, and slight instability. Figs 5 and 6 show the development of the process from April 17 1935 to September 9 1935. Fig 5 has been retouched to show the beginning area of degeneration because it was only on careful review that these roentgenographic changes were noted. It is in this type of case, if a remembered injury to the knee preceded the x-ray that trauma might well be considered the agent of etiology.

Operation on November 20 1935. Destruction and partial avulsion of the cartilage of the medial condyle with an underlying cavern of bone destruction. Postoperative convalescence complicated by a persistent cystitis (urethral stricture). Knee wound healed normally.

Splintage was enforced by plaster and brace for seventeen months. The brace was removed gradually so that at the end of twenty-one months it was discarded.

Result solid clinical and x ray fusion with

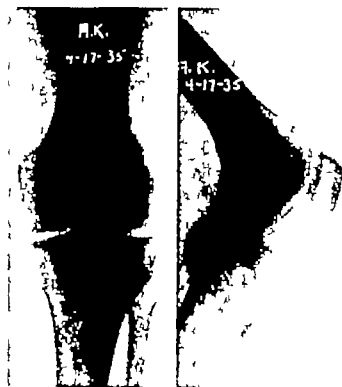


FIG 5 CASE 3 Roentgenogram of left knee on April 17 1935. Area of degeneration has been retouched.

paralysis. Splintage was enforced for a total of three years by cast and brace. During most of this time he worked, running a lunch stand. He developed an additional Charcot's joint of the left subastragaloid joint. Fig 2 shows this ankle at the time of operation and Fig 3 shows it nine months later. Thus, in the same limb a constructive healing process occurred at the site of operation, while a new focus of neurotrophic disturbance proceeded at the ankle. This focus has given him practically no bother in four and a half years.

Result solid clinical and x ray fusion. Fig 4 shows recent x-ray status. Note the improved quality of the bone at the knee area.

CASE 3—A. K., a 40-year-old male salesman born in the United States. Symptoms referable to the left knee for seven months. Limp but

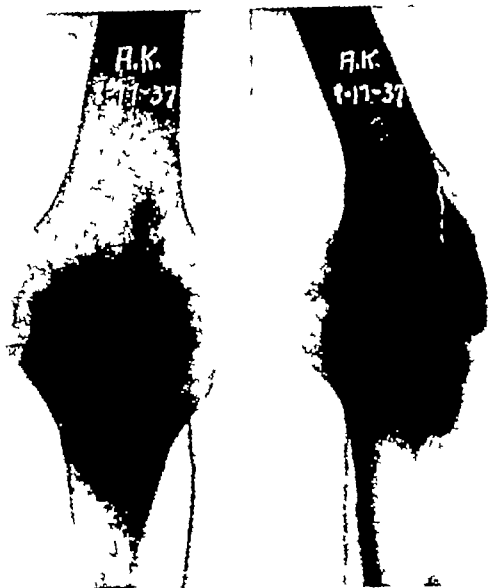


FIG 7, CASE 3 Roentgenogram of left knee twenty-one months after fusion

return to his job as a salesman Fig 7 shows the x-rays twenty-one months after fusion

**Case 4**—J B, a 57-year-old male truckdriver, born in the United States Symptoms referable to right knee twenty-six years before admission, caused a diagnosis of Charcot's knee to be made at that time, and a brace was applied at a New York hospital He wore the brace for one and a half years, then discarded it, and continued at his job without disability until six months prior to admission

Chief complaint at time of operation was a hugely deformed, unstable knee, for which he was unable to wear either a brace or cast because of resultant pressure sores

Luetic and treatment history negative. General physical status fair Pupils failed to react to light Knee jerks absent. Blood and spinal fluid Wassermann negative Colloidal gold curve negative.

Right knee massive swelling and deformity, extreme instability

Additional Charcot's joint, left knee

Operation on February 7, 1938 Gross disorganization of all joint structures Drilling of bone ends and a sliding bone graft were employed as additional measures Postoperative convalescence satisfactory Splintage was employed by plaster spica for five to six months, in which he walked with aid of crutches Union was solid at the end of this period but additional splintage by circular leg plaster was enforced for several more months

Result solid clinical and x-ray fusion He was allowed to return to work

**Case 5**—J L, a 39-year-old male dockworker, born in the United States Symptoms referable to right knee for about three months prior to admission The swelling developed without apparent cause, became progressively worse, and a bowleg developed at the knee He did recall an injury to this same joint three years before, at which time he fell and believed he fractured a bone, but no x-rays were made and he received no treatment except a week's rest in bed

Chief complaint at time of operation instability

Luetic and treatment history negative. General physical status good Pupils equal, reacted to light Knee and ankle jerks absent Blood and spinal Wassermann 4 plus Colloidal gold curve 0112100000

Right knee painless, moderate swelling, deformity, and instability

Operation on April 4, 1938 Marked destructive changes in the medial tibial tuberosity Bone ends drilled Postoperative course wound healed by primary union in normal time. Splintage by plaster of paris for seven months, then a knee brace, which he still wears eleven months after operation

Result solid clinical union, progressing bony ankylosis by x-ray

**Case 6**—F P, a 43-year-old male restaurant worker, born in Italy Symptoms referable to right knee for sixteen months Onset by injury stumbled and struck right knee against a box Required a doctor's care, and became progressively worse, so that after two months he was hospitalized and splints applied

Chief complaint at time of operation instability

Luetic and treatment history negative. General physical status only fair Pupils fixed, ankle jerks absent, Romberg positive. Blood Wassermann negative, spinal Wassermann 4 plus Colloidal gold curve not typical but suggestive of lues

Right knee marked swelling, deformity, and instability Complaint of pain on walking

Associated lesions Charcot's disease left first metatarsal-cuneiform joint

Operation on December 7, 1938 Joint grossly disorganized Marked destructive change in medial tibial tuberosity Drilling of bone ends and a sliding graft from femur Postoperative course satisfactory, wound healed by primary union Removal of spica at end of three months revealed a reassuring degree of stability for that period A long leg plaster was applied, as it became necessary to transfer him to another institution for developing paretic manifestations

## Conclusions

The method of arthrodesis and post-operative treatment that has been employed in 6 cases of Charcot's disease of the knee during the past seven years is outlined. Efficient, adequate, and prolonged splintage is stressed as a requirement in most cases.

These cases are reported with their respective roentgenograms. One case has been operated upon too recently to include it as an end result, although a very reassuring state of solidity exists two and a half months after arthrodesis. Of the 5 remaining cases, 1 was a frank failure showing at no time any attempt at ankylosis, 1 is clinically solid and roentgenographically satisfactory for progressing ankylosis at the end of ten months, and 3 are clinically and roentgenographically solid at the end of one, three, and five years, respectively.

Operative fusion for Charcot's disease of the knee joint is felt to be the treatment of choice in most instances. The length of existence of the disease and the degree of its advancement have not been found as contraindications to such treatment.

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## Discussions of the Symposium Papers

Dr. George L. Inge, *New York City*—From any discussion of the surgical treatment of chronic arthritis one inevitably comes away with the feeling of how very desirable it is to prevent the deformities and disabilities encountered in the late stages of this disease. All the operations suggested are but makeshifts and attempts at salvage. Because of the disinterest among medical men generally in early and acute arthritis, the problem of treatment in those stages is being put more and more up to the orthopedic surgeon and probably this is as it should be. Yet, however intelligent the early treatment, we shall undoubtedly continue to see the painful stiff disorganized joints of these un-

happy people, and the ingenuity of the orthopedist taxed severely in the effort to relieve them.

It seems definite at the present time that there is no surgical procedure that one can expect to change the course of the disease itself. Dr. Selig has mentioned the failure of operations upon the sympathetic nervous system to improve arthritic joints. Dr. Swett has often emphasized the fact that removal of a hypertrophied synovial membrane although it improves the local condition of the joint cannot be depended upon to alter the course of the disease elsewhere. We are therefore called upon to relieve either pain or stiffness or instability in individual joints affected by rheumatoid or osteoarthritis. In view of the nature of these operations it should be understood that they are to be used only after intelligent conservative treatment has failed to obtain the desired end.

Dr. Selig has mentioned the chief surgical procedures used in chronic arthritis with a brief estimation of their value. With his estimates most of us will probably agree that a fused hip in good position is superior to one that has painful motion; that arthroplasties are apt to be painful if significant motion is present; and that therefore a fused hip in good position is superior to arthroplasty unless the disease is bilateral, also that resection of the elbow is far preferable to arthroplasty at that joint.

At the New York Orthopedic Hospital we have been quite disappointed in the results obtained with the acetabuloplasty of Smith-Petersen in osteoarthritis. This is a relatively simple procedure and theoretically it should be useful but most of the patients in our small series have come to hip fusion subsequently because of pain. With the forage or drilling of the femoral neck for arthritis we have had no experience, a priori I should be very skeptical of its usefulness.

Of all the surgical procedures used in chronic arthritis, synovectomy alone offers the chance of restoring practically normal joints in properly selected cases. Its usefulness is found especially in chronic synovitis of the knee, although it has been used in the ankle and the small joints of the hand. Dr. Swett has had more experience with the operation than any other individual and in a recent analysis of 86 synovectomies performed at the New York Orthopedic Hospital it was found that in those cases selected according to the principles laid down by Swett, there were more than 90 per cent excellent results anatomically symptomatically and functionally. The failures of synovectomy have been mostly due to lack of adherence to those principles.

I did not have the privilege of reading beforehand the paper that you have just heard on ar-



throplasty, so that I was unable to include a formal discussion of it. However, in general it may be said that arthroplasty in chronic arthritis has a twofold threat of failure—it creates a joint with bad mechanics in a patient who already has arthritis and a tendency to painful ankylosis. Hence careful analysis of the results of arthroplasties reveals that they look much better on the operating table than they do in the follow-up clinic. Arthrodesis is certainly preferable in unilateral cases, while in the bilateral deliberate pseudarthrosis, formation is probably the method of choice, especially in rheumatoid arthritis.

The Charcot knee is a very different entity from the joints discussed above. There is no doubt that these joints are often so unstable that braces cannot support them, and ankylosis is the most desirable form of treatment. Dr. McCauley has very correctly drawn attention to the technical difficulty of obtaining fusion in this type of knee, and it is probable that everyone's experience has been similar. Drilling of the bone ends should help to ensure fusion, but ankylosis is so much to be desired in these knees that it is worth while even if two or three attempts have to be made to attain it.

Dr. Richard S. Farr, *Syracuse, New York*—It is most encouraging to listen to a symposium such as we have heard this morning. It is the first duty of the orthopedic surgeon to prevent deformity in these cases and he should be called early before deformity has occurred.

Atrophic arthritis is multiple and occurs in the young. When operation is necessary the patients are often in poor physical condition. This should be corrected before they are subjected to operation. Dr. Swett brought that out very well in his paper, and it should be emphasized. Atrophy of the muscles is marked and poor musculature may be the cause of failure in synovectomy or arthroplasty. Atrophy of the bone with punched out areas and also thickening of the capsule are other variations that will not respond to synovectomy. Arthrodesis may be indicated in these cases.

Osteoarthritis occurs in older people and is frequently monarticular. In this type the progress may stop at any stage. Relief of weight-bearing with medical care often relieves the pain. If pain continues, arthrodesis may be the method of choice.

After all, each case is an individual problem, and surgical procedure and the proper time for operation are the responsibilities of the surgeon. No cut and dried rules can be given. But we know that arthrodesis will relieve pain, arthroplasty will restore a useful range of motion, resection will give motion and sacrifice stability,

and correction of the deformity will often rehabilitate a chronic arthritic invalid. Not many cases are made worse by surgery.

Dr. McCauley offers us great hope in Charcot joints. His results are essentially very good. Arthrodesis is the operation in Charcot knee. Again, early recognition of a syphilitic patient before neurologic symptoms develop would perhaps prevent the joint changes that take place late in the disease, providing adequate treatment is carried out. Lumbar puncture is the only means of diagnosis, and will determine the changes in the nervous system before physical signs appear.

Dr. Selig has outlined the various operations for the relief of the patient with chronic arthritis. His descriptions have of necessity been brief because of the variety of procedures that have been advocated. Arthritis is a general disease. The manifestation in the joint is local and is an inflammatory process. The resulting ankylosis is a scar. Your choice of procedure in removing the scar may be successful if the correct operation is performed at the proper time.

Dr. Heywood H. Hopkins, *Rochester, New York*—The paper just given by Dr. Seth Selig, which refers to the use of vitallium as a method of doing an arthroplasty of the hip, is of great interest to me and it might be of interest to you to know that the first arthroplasty ever done in a human subject with the use of vitallium was done by me and my associate Dr. Frederick N. Zuck at the Veterans Hospital in Bath, New York, on February 11, 1938, with a vitallium cup that was made from our original models of human hips. The first article to appear in print on this subject was the article *Arthroplasty of the Hip with the Use of Vitallium Cup*, appearing in the July, 1938, issue of the *Medical Bulletin of the Veterans Administration*, Vol. 15, No. 1, by myself and Dr. Zuck.

Since doing this first case, 4 others have been done with our type cup, and I am happy to report that all are showing satisfactory progress. The first case was a man who had been confined to bed for seven years and when last seen recently he was able to walk for a mile or more, ascend stairs, and sit erect, and he has a good functioning joint with right-angle flexion and adequate abduction, adduction, and both in ternal and external rotation without pain.

Our type cup has been used in one of the above cases to replace a Smith-Petersen glass cup which had broken and become painful.

We feel that the use of vitallium cups is justified in doing hip arthroplasties and see no reason why the patients should not get excellent results from this type of surgical procedure.

# Presidential Address

TERRY M. TOWNSEND, M D

President of the Medical Society of the State of New York

## Dubious Dollars

*Delivered before the Bronx County Medical Society October 18 1939*

**T**his question of government practice of medicine involves more than the mere fate of the doctor. The profession has no right to consider it only in terms of its personal interests. The fate of the patient also is involved and perhaps the destiny in this country of democracy itself.

What is democracy? It is a national way of life. Its principal characteristic is that a citizen acts by himself and for himself in the conduct of his private affairs with the least possible interference from government. What is autocracy? Its characteristic is that the state acts for the citizen in many of his private affairs, and by the exertion of force requires him to conform to a way of life that may be wholly at variance with his wishes.

Democracy is always in danger. It must constantly be defended. At all times and in all ages the urge for power has animated some of our most energetic and intelligent citizens. Thinking they know best what is good for others they seek under various guises or disguises to assert authoritarian control. Gradually greater power is assumed, always ostensibly for the good of the people. We are now in such an era.

History records that free peoples are seldom divested of their liberties suddenly. The seeds of disintegration are first sown. The malcontents and discontents are told that they are entitled to more of the world's goods than they are getting. They swallow the promise of the politician, and, for paltry subsidies give up first one and then another of their rights and privileges until finally they are intellectually and morally bankrupt. They give far more than they get but they don't know it.

Gracchus in ancient Rome made himself for ever famous by one of the earliest pieces of social legislation of which we have record. It was the two-price system for wheat. The grain subsidy was needed to mitigate the evils of unemployment. Soon this became direct relief. At one time the right to free food was hereditary. Later grain distribution was withdrawn by Sulla who had an army to enforce his decrees. Public pressure demanded restoration of the bounty. Claudius ran for tribune on a free wheat platform. A decade later Julius Caesar came to power and found 320,000 persons on grain relief. Caesar became a dictator. He no longer needed the votes of citizens. Promptly he promoted the migration of the relievers from Rome, where they had been basking in the bright lights. He cut 150,000 off the rolls with a means test. Next 80,000 citizens were sent overseas. A dictator can quickly cure the evils brought upon democracy by a demagogue. But the cure is worse than the disease.

I wish to make the point that dictatorship had

to come that only dictatorship can end the vices of a system by which the competent persons in the community are required to carry the incompetent. The time comes when a major surgical operation is required. The work of the world must be done. Under a paternalistic government the demands of those who prefer life a bounties to life's burdens increase until their number is so great that the industrious and thrifty revolt at the load of taxation they must carry. Only a dictatorship then can force the parasites to contribute their share.

One of the great lessons of history is that the first step toward autocracy from democracy is the sufferance by the people of a paternalistic government and the acceptance by the people of subsidies—which are not subsidies at all, because in the end the people have to pay for them.

I have cited the example of free wheat and the dictatorship that followed only as an illustration. I do not doubt that if private enterprise in ancient Rome had built the machinery of medical care to be as successful and as commonly available as doctors have made it today this too would have been offered as a free boon by the demagogues who sought a cheap and easy way to obtain political power.

In Athens, in Rome in Europe today the conflict is raging to decide whether force or intelligence shall rule. The conflict is on in this country. It is here in the Bronx tonight. Is force to rule or is intelligence to rule? Communism or democracy? Fascism or democracy? Call it national socialism or collectivism or paternalism or state medicine it is all one and the same thing. Force exerted by the state on the citizens. State medicine is forced medicine. You'll take it and like it. It is the doctor's dole. You'll do what you're told. You'll get a dollar from a bureaucrat and wear his collar forever. The patient will give up his freedom of choice of physician for the illusory benefit of medical care he may consider to be of questionable quality because he does not have to pay anything to get it.

How much then will quality count when the emphasis is bound to be on quantity? You will see fifty or sixty patients a day. They will distrust you, you will suspect them. A beautiful relationship! All this, let me remind you to obtain a sense of security at the hands of a government that can instantly cut down your dole after you are well regimented if it becomes necessary to raise the wherewithal to satisfy some new clamoring group of malcontents.

It is shortsighted to accept this patrimony when the price you pay is loss of freedom and disparagement of the quality of your service. But such shortsightedness is not unknown among professional men or among those who call them

selves professional men. The fee-splitter is shortsighted. He sells his honor and his sure intent for a fee that he has not earned, and he obtains it in such a way that if the patient were aware of it he would get another doctor. Fee-splitting is an admission of failure. It is a confession, a disgraceful confession of incompetence. The fee-splitter is a moral indigent. I will not say that he is always an advocate of state control of the practice of medicine, or that all advocates of state medicine are fee-splitters, but to my nostrils there is an aroma about the behavior of both of them that makes them kin. Rather than gird their loins through the lean years, and "take it," they both seek the dubious dollar. They have that in common, and by their voluntary acts they become professionally disfranchised.

You know the story of the struggle in the Middle Ages between king and nobility, nobility and burghers. In the 14th, 15th, and 16th centuries no citizens other than the burghers had any rights or privileges, unless granted by the feudal lord. Then came the struggle for the right of individual conscience. In the 17th and 18th centuries, the right of property developed. Then came the revolutionary individualism of the French and American revolutions, vesting in the citizen many rights and privileges with few powers granted to the state, and all those not specifically granted residing in the people.

I conceive state medicine as the first step toward authoritarian government in this country, because it will involve so many millions of our population in the grip of its regimentation. If I were a Communist, intent on changing the form of our society by a technic of infiltration, gradually destroying individualism, I would start precisely with medical care. It is the

logical place to insert the entering wedge. Throw the doctor a bone to chew on, walk in the door of the American home and say "I will bring you a doctor and you will not have to pay him." This is far closer to being sure-fire stuff for these times than the free wheat of Claudius. That, as we have seen, resulted later in a dictatorship to force the people back to work to avoid national insolvency. We do not have the advantage of knowing whether free medical care for the people of Rome would have facilitated the corruption of the populace. Medical care in Rome was not understood or highly regarded by the populace, but I do not doubt that if Claudius were here today he would consider it a "natural." The creation of a modern dictatorship uses modern tools, but the philosophy is the same. Destroy the people with gifts. The means differ, the ends are identical.

It has taken centuries of struggle to produce the democracy we have today. Liberties we enjoy and take as a matter of course have been won for us by our ancestors only by the loss of life, by imprisonment, by persecution, by exile. If we do not value our freedom and our institutions enough to struggle against government patrimony to retain them, we shall lose them. He who leans on the state will be crushed when the state, lacking his support, totters and falls on him.

Let us resist beginnings. The state cannot prosper through the enslavement of the people. What we have had to fight to obtain we must fight to retain. As professional men, citizens of a democracy, we should be leaders in the age-old struggle for individual rights and liberties, which at this moment of American history is approaching a crisis.

### Deaths of New York State Physicians

Name	Age	Medical School	Date of Death	Residence
Biagio Bartoli	71	Naples	October 15	Manhattan
Jacob L. Brower	66	L I C Hosp	October 14	Manhattan
Duncan A. Dobie	80	Toronto	October 23	Manhattan
Johanna B. Leo	75	W M C Pa	October 20	Manhattan
Roberto F. Mastella	42	Univ Rome	October 15	New Rochelle
M. Clifford Pardee	71	N Y Hom	October 25	Brooklyn
Augusta P. Schultz	67	N Y M C & H Wom	October 19	Bronx
William H. Snyder	66	N Y Hom	October 17	Newburgh
Willard R. Starks	74	Michigan	October 6	Chatham
George Stevenson	77	Jefferson	September 11	Mount Morris
Adam H. Straub	73	L I C Hosp	July 2	Brooklyn & Manhattan
L. Edward Vilhaume	62	Buffalo	October 16	Buffalo
Owen M. Waller	71	Howard	October 12	Brooklyn
Clarence B. Whittemore	48	Jefferson	October 22	Johnson City

# Society Activities

## Malpractice Insurance Under Group Plan

THE parent company of the Yorkshire Indemnity Company of New York is the Yorkshire Insurance Company, Ltd of England. For that reason in the present war situation some members of the Society have asked whether that connection would in any way involve the financial status of the Yorkshire Indemnity Company of New York. This matter has been carefully scrutinized by the Malpractice Defense and Insurance Committee of the Council, and Mr H F Wanvig the Indemnity Representative of the Medical Society of the State of New York. The answer which is entirely satisfactory to the Council is that the assets of the Yorkshire Indemnity Company of New York will not be affected in any way by the war. The following letter has been received by Mr Wanvig from the Insurance Department of the State of New York.

Mr H F Wanvig, Indemnity Representative  
Medical Society of the State of New York  
70 Pine Street  
New York City

Dear Sir

This will acknowledge yours of September 28th in which you presented a series of questions concerning the Yorkshire Indemnity Company of New York.

To permit of more efficient treatment of the subject, we have chosen to answer your questions in the order of their submission.

1 The Yorkshire Indemnity Company of New York is a New York State corporation and from the statements filed by the company with this department, it would appear that all of its assets are held within the United States.

2 Statements filed by the company with this department would seem to indicate that its financial condition is more than adequate to meet the requirements of this department for the lines of business authorized. Examinations made by this department would also tend to show that the reserves maintained by the company are adequate to discharge its liabilities.

3 Since the company must at all times maintain a capital and surplus commensurate with the requirements of this department for the lines of business authorized it is felt that there is little danger of dissipation of the assets of the company through payment of dividends to its parent company, the Yorkshire Insurance Co Ltd.

We trust that the foregoing provides you with the information desired.

Yours very truly  
LOUIS H. PINCK  
Superintendent of Insurance  
By Charles A. Wheeler  
Chief of the Casualty Bureau

State of New York  
Insurance Department  
New York City  
October 6 1939

## Correspondence

To the Editor

May we, through the pages of the *New York State Journal of Medicine* request that members of the Medical Society of the State of New York urge unlicensed graduate nurses with whom they may come in contact to make application immediately for a license to practice. Such application should be addressed to Miss Stella Hawkins Secretary State Board of Nurse Examiners, Albany New York.

May we also call attention to the service that is being given by our professional organization to nurses who have found on application that certain deficiencies need to be corrected. Any nurse having received notice of a deficiency and who wishes help may write to the headquarters office of the New York State Nurses Association, 162 Washington Avenue, Albany New York, for advice.

An Advisory Service to Graduate Nurses has already been established in Districts 13 and 14 in New York City and Brooklyn with a director in charge who is available for guidance and who arranges such courses or instruction as may be necessary.

New York State registered nurses, sponsors of the nurse practice act, are eager to lend a hand to those who need assistance in order to obtain a license. We shall be grateful for the opportunity afforded by your JOURNAL in making known this service.

Sincerely yours,  
EMILY J HICKS R.N.  
Executive Secretary  
New York State Nurses Association

October 13 1939

## Prize Essays

The Merrit H Cash Prize and the Lucien Howe Prize will be open for competition at the next Annual Meeting of the Medical Society of the State of New York, May 6, 1940

The Lucien Howe Prize of \$100 will be presented for the best original contribution on some branch of surgery, preferably ophthalmology The author need not be a member of the Medical Society of the State of New York

The Merrit H Cash Prize of \$100 will be given to the author of the best original essay on some medical or surgical subject Competition is limited to the members of the Medical Society of the State of New York, who at the time of the competition are residents of New York State.

The following conditions must be observed

Essays shall be typewritten or printed and the only means of identification of the author shall be a motto or other device The essay shall be accompanied by a sealed envelope having on the outside the same motto or device and containing the name and address of the writer

If the committee considers that no essay or contribution is worthy of the prize, it will not be awarded

All essays must be presented not later than April 1, 1940, and sent to the Chairman of the Committee on Prize Essays of the Medical Society of the State of New York, 2 East 103rd Street, New York City

EUGENE H POOL, M D , *Chairman, Committee on Prize Essays*

## LECTURES TO THE LAITY

The New York Academy of Medicine announces its fifth (1939-1940) series of *Lectures to the Laity* on the "Art and Romance of Medicine" This series will be inaugurated by Malcolm Goodridge, president of the New York Academy of Medicine All lectures will be given at 8 15 P M at the Academy

*November 30* "The Inheritance of Mental Disease"—Dr Abraham Myerson, Clinical Professor of Psychiatry, Harvard Medical School, Boston

The theories and facts of the inheritance of mental disease, and the value of sterilization

*December 28* "The Ascent from Bedlam"—Dr Richard H Hutchings, Professor of Clinical Psychiatry, Emeritus, Syracuse University Medical College

The remarkable growth of the mental hospital Is mental disease increasing? New standards for mental health

*January 25* "The Story of Our Knowledge of the Blood"—Dr Paul Reznikoff, Assistant Professor of Clinical Medicine, Cornell University Medical College

Blood has had a fascinating importance for humans since ancient times The invention of the microscope, and modern knowledge of blood The great medical significance of the recent hematological discoveries

*February 29* "The Romance of Bronchoscopy"—Dr Chevalier Jackson and Dr Chevalier L Jackson, Professors of Broncho-Esophagology, Temple University School of Medicine, Philadelphia.

The bronchoscope, what it is, how it is used, and what is seen through it will be demonstrated by lantern slides and motion pictures

*March 28* "The Story of the Viruses"—Dr Thomas M Rivers, Director, The Hospital of The Rockefeller Institute for Medical Research

The development of knowledge of viruses, a historical review, and an evaluation of that knowledge in relation to certain other biological facts

*April 25* "Chemical Warfare Against Disease"—Dr Perrin H Long, Associate Professor of Medicine, Johns Hopkins University, Baltimore.

It has been the hope of physicians for many years that chemical compounds would be available that would cure bacterial infections Since the introduction of prontosil remarkable strides have been made in the treatment of bacterial infections with sulfanilamide or its derivatives It now appears as though within time the majority of infectious diseases may be conquered by chemical products

# Medical News

## Medical Expense Indemnity Insurance

ACCORDING to the law enacted by the last Legislature regarding the incorporation of medical indemnity groups, the Department of Social Welfare, as well as the Department of Insurance, must pass on applications for incorporation before they are accepted by the Department of State. The Department of Social Welfare has had several conferences with representatives of groups during the summer and as a result of these conferences it has announced the following rules and regulations that shall be followed by those seeking certificates of incorporation, as revised on October 24 1939

"WHEREAS subdivision one-b of section eleven of the Membership Corporations Law (as amended by L. 1939 ch. 893) requires the consent of the State Department of Social Welfare to be endorsed on a certificate of incorporation which specifies among its purposes the establishment, maintenance and operation of a medical indemnity plan as permitted under article IX-c of the insurance law, and

"WHEREAS, in the public interest and in this matter of public concern it is desirable and necessary to take certain steps to protect the health and welfare of individuals involved and to perform effectively the duties devolved upon the department in this connection therefore be it

Resolved that a new rule to be rule M.C. eleven-one be adopted to read as follows

M.C. 11 1 The consent of the State Department of Social Welfare to a certificate of incorporation which specifies among its purposes the establishment, maintenance and operation of a medical indemnity plan as permitted under article IX-c of the insurance law shall not be granted unless

A. the members of the board of directors shall be of such experience and standing as to give assurance of their ability to conduct the affairs of the corporation in its best interests and the interests of its subscribers, and

B such certificate provides

(1) of the members of the board of directors at least one third shall be persons other than physicians and at least one-third shall be physicians duly licensed to practice in the State of New York.

(2) the board of directors shall have one member for each one hundred thousand of population in the territory in which the corporation is authorized to operate, but not less than six nor more than twenty four

(3) the plan shall be open to the participation of every duly licensed physician in the territory to be served.

(4) there shall be free choice by subscribers of physicians admitted to such plans subject to

(a) the acceptance of patients by the physician, and

(b) rules which the corporation may

adopt to regulate the professional activities of participating physicians.

M.C. 11 2 Nothing in these rules shall be construed to limit the power of a corporation, to which such rules apply from establishing conditions of participation of every duly licensed physician in the territory to be served and from providing appropriate measures of discipline for breaches thereof

The House of Delegates of the State Medical Society at its last meeting in Syracuse, adopted the following suggestions with regard to the aims and objectives of such a corporation

1 It must be nonprofit.

2. It should involve cash indemnity and not medical service.

3 Patients must have absolute freedom of choice in selecting a duly qualified physician from all those qualified to practice and willing to give service within the locality covered by the operation of the company

4. No third party may be permitted to come between the patient and his physician in any medical relation. The method of providing service must retain a permanent confidential relation between the patient and the physician.

5 The fees should not be below those of the Workmen's Compensation schedule but there must be no interference with higher fees being charged to the higher income group

6 Such control to be exercised by or under the direction of the Medical Society of the State of New York or one of its component County Societies.

7 The eventual aim of any plan should be to cover medical care in the office, home and hospital.

## Federal Health Insurance Legislation

SENATOR LODGE of Massachusetts introduced in the Senate of the United States on August 4 the following health insurance bill. It was read twice and referred to the Committee on Finance. This bill is still with the Committee and may be acted upon by the next Congress. It should be carefully studied and reactions reported to the chairmen of the County Legislative Committees

To provide health insurance to certain workers in severe economic distress

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled That this Act may be cited as the 'Health Insurance Act of 1939

Sec. 2 The Social Security Act is amended by adding at the end thereof the following new title

### 'TITLE XII—HEALTH INSURANCE

#### APPROPRIATION

Sec. 1201. For the purpose of assisting qualified individuals to receive medical services when they require such care but are without

means, the Secretary of the Treasury is directed to pay each month from the "Old-Age Reserve Account" the amount estimated by him and by the Chairman of the Social Security Board which will be expended during the month by the Social Security Board and the Treasury Department for the administration of this title

#### 'QUALIFIED INDIVIDUALS

'Sec. 1202 An individual shall be qualified for health-insurance payments under this title if—

'(a) he has been registered as unemployed for at least fifteen consecutive weeks at a public employment office or other agency approved by the Board, and

'(b) he is not receiving an old-age benefit payment under title II, and

'(c) he has been paid, after December 31, 1936, not less than \$5,000 in total wages (as defined in section 210 (a)) with respect to employment (as defined in section 210 (b)), and

'(d) he has been paid such wages, with respect to such employment on some three days after December 31, 1936, and before he attained the age of sixty-five, each day being in a different calendar year, and

'(e) he has filed with the Social Security Board (1) an application for health-insurance benefits, (2) a bill for medical or hospital services rendered to him, and (3) the sworn affidavit of the attending doctor or of the medical supervisor of a hospital furnishing assistance to him, that the applicant received medical or hospital treatment from such doctor or such hospital and that the bill rendered is a reasonable charge for such services

#### 'HEALTH-INSURANCE BENEFIT PAYMENTS

'Sec 1203 (a) Every qualified individual shall be entitled in any year, upon approval of his application by the Social Security Board, to have forwarded to the doctor or hospital furnishing him with medical or hospital services, in part or full payment, for such services a sum equal to all or to any part of the health-insurance benefit to which such individual is entitled for such year. The health-insurance benefit to which a qualified individual is entitled for any year shall be equal to one-fifth of 1 per centum of his total wages, except that such benefit shall not be in excess of \$25 for any year and the total of all such benefits for any individual shall not be in excess of \$100

'(b) If the Board finds at any time that more or less than the correct amount has theretofore been paid in behalf of any individual under this section, then, under regulations made by the Board, proper adjustments shall be made in connection with subsequent payments under this section in behalf of the same individual

#### 'REGULATIONS

'Sec 1204 (a) The Board shall have full power and authority to make rules and regulations and to establish procedures, not inconsistent with the provisions of this title, which are necessary or appropriate to carry out such provisions, and shall adopt reasonable and proper rules and regulations to regulate and provide for the nature and extent of the proofs and evidence and the method of taking and furnishing the

same in order to establish the right to benefits hereunder

'(b) The Board is directed to make findings of fact, and decisions as to the rights of any individual applying for benefits under this title.

'(c) The Social Security Board shall provide for opportunity for a fair hearing before an impartial tribunal for individuals whose claims for health-insurance benefits are denied

#### 'METHOD OF MAKING PAYMENTS

'Sec 1205 Upon approval of an application and the bill for medical or hospital services submitted therewith, the Board shall certify to the Secretary of the Treasury the name and address of the doctor or hospital entitled to be paid for medical or hospital services given to a qualified individual, the name and address of such qualified individual, the amount of such payment, and the time at which it should be made, and the Secretary of the Treasury through the Division of Disbursement of the Treasury Department, and prior to audit or settlement by the General Accounting Office, shall make payment in accordance with the certification by the Board

#### 'PENALTIES

'Sec 1206 (a) Whoever in any application for any payment under this title or in any document in connection with such application makes any false statement as to any material fact, knowing such statement to be false, shall be fined not more than \$1,000 or imprisoned for not more than one year, or both

'(b) Any qualified individual participating in any such false statement shall lose all further rights to health-insurance benefit payments

'(c) Any doctor participating in any such false statement shall be reported by the Board to the medical authority which issues and revokes licenses to practice medicine in his State

#### 'DEFINITIONS

'(a) The term "hospital," when used in this title, includes health, diagnostic, and treatment centers, institutions, and related facilities, administered by a person licensed to practice medicine in that State and which operates on a nonprofit basis

'(b) The term "doctor," when used in this title, includes any medical practitioner licensed in the State in which the beneficiary received treatment"

#### "National Hearing Week"

Speaking on a program dedicated to "National Hearing Week" in the Hall of Medicine at the World's Fair on October 24, Dr Augustus J Hambrook, of Troy, New York, stated that efforts to improve the condition of the hard of hearing encounter a great obstacle because there is no popular instinctive sympathy for them

"We all help the cripple across the street," he said, "the blind man groping his way finds everyone's hand outstretched to protect him, but the person whose hearing is impaired—he is just regarded as a nuisance"

Dr Hambrook is chairman of the committee on the conservation of hearing of the Medical Society of the State of New York and vice-chairman of the New York State Commission on the Hard of Hearing and Deaf. He spoke on a pro-

gram sponsored by the New York League for the Hard of Hearing.

"If the public knew how much improvement can be produced by education in lip reading as well as by scientific advances in medical knowledge of the ear," said Dr. Hambrook, "the problem of helping these citizens would not be so difficult. Popular apathy prevents many people from knowing they can get help from the means which are now at hand. Yet statistics show that the problem of the hard of hearing involves 4 per cent of the population."

Dr. Hambrook explained progress which has been made by the state commission of which he is vice-chairman. He explained that in two

years many advances have been made in early discovery of children suffering from hearing defects. Prompt treatment of all these children is now the rule, rather than the exception," said Dr. Hambrook. "Less time is wasted in school knowledge is more quickly gained, and a better adjustment results from the feeling of superiority which compensates for the physical handicap. At least 2 per cent of the school population has some degree of hearing impairment. But the future looks bright for the hard of hearing in this state. Legislation provides for the reporting of all cases, and the law providing for an audiometer test will enable us to discover all defects potential or acquired."

## County News

### Albany County

The Medical Society County of Albany on October 18 listened to an address by Henricus J. Stander, M.D., F.A.C.S., obstetrician and gynecologist-in-chief, New York Hospital on "General Considerations of the Toxemias of Pregnancy."

Dr. Stander in his address considered the new classification of the toxemias made by the committee appointed by the American Committee on Maternal Health.

Each type of toxemia was discussed particularly from the point of view of treatment. These are vomiting of pregnancy, hypertensive disease, renal disease, pre-eclampsia, and eclampsia. Although chronic nephritis (renal disease) is not a toxemia of pregnancy it was fully discussed for the reason that it must be differentiated from hypertensive disease and from pre-eclampsia.

The next meeting of the Albany County Medical Society will be held on Wednesday, November 16. Dr. Carl Eggers of New York City will speak on "Carcinoma of the Breast."

### Bronx County

Dr. Terry M. Townsend, president of the Medical Society of the State of New York, addressed the Bronx County Medical Society at Burnside Manor on October 18 (see page 2139).

Dr. Joseph S. Lawrence, executive officer of the state society, discussed medical care for relief patients, and matters relating to future legislation. He was followed by Dr. Peter Irving, general manager of the society, who pointed out the need for the physician to protect the confidential personal relationship with his patient.

The speakers were introduced by Dr. George E. Milani, president of the Bronx Medical Society. Among those who welcomed the guest speakers was Dr. Nathan B. Van Etten, president-elect of the American Medical Association, who is a member of the Bronx County Society.

### Broome County

At the regular monthly meeting of the Broome County Medical Society at the Monday afternoon club house, in Binghamton, on October 10, Dr. C. J. Marshall and Dr. B. I. Wulff presented a case report on "A Deformed Pelvis Due to Cleidocranial Dysostosis," and Dr. Milton A. Carvalho spoke on the "Use of Cystogram in the Diagnosis of Placenta Praevia." (A study of 111 cases.) Discussion was opened by Dr. S. S.

Sanderson, Dr. S. B. Blakely, Dr. H. I. Johnston and Dr. G. R. Cheatham.

### Columbia County

Dr. Willard R. Starks, of Chatham, who died on October 6, had practiced medicine forty-eight years. He was also president of the State Bank of Chatham.

### Erie County

The Erie County Medical Society is launching an insurance at cost plan under the caption of The Western New York Medical Plan, Incorporated. The committee has been active since October 1938. Through Assemblyman R. Foster Piper in the legislature it was known as the IX-c bill.

It meant a recodification of the State Insurance Law and included the new section which is called IX-c and which provides for such an organization, according to the committee's plan. It was referred to the Department of Social Welfare of this state and approved with some minor changes. Then papers of incorporation were secured. We were the first society to be incorporated after the signing of the bill by Governor Lehman.

The keynote of the Western New York Medical Plan is maintenance of confidential, personal relations between physician and patient, the latter having completely free choice of his physician. With the entire Erie County Medical Society enlisted in support of the plan, virtually all licensed physicians in the county will be members. This means that the subscribing patient will continue to have his or her own family physician and will be indemnified by the corporation up to the specified limits for that physician's services. The subscribing member with no previous family physician will have full and free choice of all member doctors—subject only to the selected physician's acceptance of the case.

The tentative annual premiums are \$18 for a single man, with indemnity limited to \$200; \$20 for man and wife, with indemnity limited to \$300; and \$36 for man, wife, and children under 18 with indemnity limited to \$400.

The annual clinical afternoon and dinner of the Buffalo Academy of Medicine was held at the Hotel Statler on November 8.

The Academy met at the Museum of Science on October 25 and heard an address on "Breast



Tumors," by Dr Charles F Geschickter, of the Johns Hopkins Hospital, Baltimore, Maryland. On October 18 the Academy listened to a paper on "Endocrinology in Gynecology," by Dr Elmer L Sevringhaus, of Madison, Wisconsin.

Dr James H Borrell, president-elect of the State Medical Society, who died in September, bequeathed \$10,000 to the University of Buffalo and the Millard Fillmore Hospital for medical purposes, it was disclosed in his will, probated on October 5.

#### Franklin County

The annual meeting of the Franklin County Medical Society was held at the Alice Hyde Hospital in Malone on October 25, with the following program "Diverticulitis," by Dr Aloney L Rust and Dr John E White, "Crushing Injuries to the Chest," by Dr Philip E Stamatiades, "Resection of Stomach," by Dr Raymond G Perkins, "Treatment Fracture of Neck of Femur," by Dr William A Gaspar, and "Influenza Meningitis," by Dr John W Kissane.

The first in a series of five lectures on "Health Problems for the Mature Woman" was given on October 13 in the Harrietstown town hall. Dr E M Jameson was the speaker.

The lectures were arranged by the Franklin County Medical Society as part of the health program sponsored by the Franklin County Home Bureau.

The Home Bureau units of the county have been divided into two districts. The units in the northern sector met in Malone and those in the southern part at Saranac Lake. The same lectures given at Saranac Lake were given in Malone on the previous evening.

The other lectures of the series were held on successive Thursday and Friday nights.

The data for the succeeding lectures as prepared by Dr Daisy H Van Dyke, secretary of the medical association, follow: October 19 and 20, "Cancer," by Dr John E White, of Malone, October 26 and 27, "Degenerative Diseases," by Dr R G Perkins, of Malone, November 2 and 3, "Tuberculosis," by Dr Francis B Trudeau, of Saranac Lake, and November 9 and 10, a summary of the series given by Dr Joseph P Garen, head of the Saranac Lake office of the New York State Department of Health.

#### Fulton County

The regular monthly meeting of the Fulton County Medical Society was held at the Hotel Johnstown, Johnstown, New York, on October 19. There were about thirty members present. President John Shannon presided. A considerable amount of business was disposed of.

The Society went on record as being desirous of a more active Woman's Auxiliary Unit, and it was decided that the Society would plan to avail itself of some of the postgraduate instruction offered through the facilities of the State Society as soon as the arrangements can be made.

Dr George M Mackenzie, physician-in-chief of the Mary Imogene Bassett Hospital, in Cooperstown, New York, talked on the "Diagnostic and Therapeutic Applications of the Newer Knowledge of the Physiology of the Extra-Hepatic Biliary Tract." The talk was il-

lustrated with lantern slides. The paper was discussed by Dr B G McKillip, Dr E G Gillmore, and others.

A luncheon followed the meeting.—*Reported by Louis Tremante, M D, Secretary*

#### Herkimer County

Dr Harry Dan Vickers, of Little Falls, was nominated for president of the Herkimer County Medical Society to succeed Dr George A. Burgin, also of Little Falls, at a meeting on October 10 at the Mohawk Valley Country Club. Election takes place in December.

Other nominations: first vice-president, Dr George Frank, of Frankfort, second vice-president, Dr B G Shults, of Herkimer, third vice-president, Dr D N Lill, of Dolgeville, treasurer, Dr A L Fagan, of Herkimer, secretary, Dr Fred C Sabun, of Little Falls, librarian, Dr George S Eveleth, of Little Falls. Dr R C Hall, Utica, read a paper on "Intravenous Pyelography in Diagnosis." Clinical reports were given and specimens shown. Dinner followed.

#### Kings County

The Medical Society of the County of Kings and Academy of Medicine of Brooklyn met on October 17 at the MacNaughton Auditorium, and heard this scientific program: 1 "Regional Ileitis: Medical Aspects, Surgical Indications," by Burrill B Crohn, M D, 2 "Bleeding Lesions of the Intestinal Tract and Their Roentgenologic Diagnosis," by Byrl R. Kirklin, M D, and 3 "Carcinoma of the Duodenum, Jejunum, and Ileum," by Charles W Mayo, M D.

Recent Friday afternoon lectures at the MacNaughton Auditorium included: October 13—"Office Procedures in the Diagnosis and Treatment of Fractures for the General Practitioner," by David Telson, M D, October 20—"The Diagnostic and Therapeutic Aspects of Cancer for the General Practitioner," by George T Pack, M D, October 27—"Insulin-Modifications, Methods of Use and Their Evaluation," by H Rawle Geyelin, M D, November 3—"Diagnosis and Therapeutic Ophthalmological Procedures for the General Practitioner," by John H Dunnington, M D, and November 10—"Diagnosis and Treatment of Obesity," by Max A Goldzieher, M D.

Dr K C McCarthy, of Toledo, was the guest speaker at the regular meeting of the Horace Wells Anesthesia Society on October 16 at the Hotel St George.

Dr McCarthy, who is anesthetist for the Toledo Hospital, Mercy Hospital, and Lucas County Hospital, is considered one of the greatest exponents of gas oxygen anesthesia in the country. He spoke on "The Scope and Safety of Nitrous Oxide Oxygen Anesthesia."

Officers of the society are Dr Nathan Kaplan, president, Dr A Bromberg, vice-president, Dr Perry L Diamond, treasurer, Dr J A Heidbrink, honorary president, Dr Charles E Murphy, historian, and Dr M Lee Garland, secretary.

Dr Owen Meredith Waller, Brooklyn Negro physician, aged 71, who died on October 12, was also a Doctor of Divinity and assistant

rector of St. Augustine's Protestant Episcopal Church. He studied at Oxford, Howard University Medical School and the General Theological Seminary and had practiced medicine in Brooklyn for thirty-five years

#### Madison County

The annual meeting of the Madison County Medical Society was held at the Hotel Oneida, in Oneida, on October 26. The scientific program was as follows:

Afternoon "The Medical Care of County Welfare Patients," Lee C. Dowling, Deputy Commissioner, New York State Welfare Department, Albany, President's Address: "Albuminuria in Children," Ernest Freshman, M.D., Oneida, "Peripheral Vascular Disease," Arthur N. Curtiss, M.D., Syracuse—Illustrated by slides.

Evening "Pneumonia—Diagnosis and Treatment," Henry V. Hyde, M.D., Syracuse. This was presented in a forum discussion, when questions were asked from the floor and answered by the speaker. "Diagnosis of Ovarian Dysfunction by Means of Endometrial Biopsy," Fred L. Ritter, M.D., Syracuse—Illustrated by slides.

#### Monroe County

Public demand for some form of health insurance must be met by physicians or others will endeavor to do it, Charles S. Baker, legal counsel for the District of Columbia Medical Society, told members of the Monroe County Medical Society and Rochester Bar Association at a meeting at the Rochester Academy of Medicine on October 17.

"Physicians have come to realize also that they must try it out so that they will be in a position not to think but to know the strong points and weak, which are inherent in such a scheme," he said. He outlined for Rochester physicians some of the difficulties and obstacles encountered in forming the Group Health Association sponsored by the District of Columbia Medical Society.

At a brief business session, officers and censors were nominated for 1940.

#### Montgomery County

The third lecture on "Organic Neurology" in the postgraduate course of the Medical Society of the County of Montgomery was given on October 10 in Amsterdam at the Elks Club by Wardner D. Ayer, M.D. of the University Medical School of Syracuse, through the Council Committee on Public Health and Education, New York State Medical Society and the Committee for Post-Graduate Course for the Medical Society of the County of Montgomery. Dr. L. H. Finch, president, presided and introduced the speaker.

Dr. Ayer had as his topic "Acute Infectious Processes," covering meningitis, encephalitis, poliomyelitis and myelitis.

#### New York County

A special meeting of the Medical Society of the County of New York on October 18 authorized Dr. Howard Fox, president, to appoint three committees to study three aspects of the problem of medical care for the poor. The committees will report back next March. The meet-

ing was held in the Academy of Medicine, Fifth Avenue and 103rd Street. About 700 attended an unusually large gathering.

Dr. Fox announced the following appointments:

Committee on Medical Care of Indigents—Dr. Bernard S. Denzer, Dr. Adolph G. De Sanctis, Dr. Charles E. Farr, Dr. Peter M. Murray and Dr. Giles W. Thomas.

Committee on Voluntary and Cooperative Health Insurance Plans—Dr. Clarence G. Bandler, Dr. Harold B. Davidson, Dr. W. Bayard Long, Dr. Kingsley Roberts, and Dr. Theodore Sanders.

Committee on Economic Conditions of Physicians in New York—Dr. Ernst P. Boas, Dr. Joseph A. Devlin, Dr. David J. Kaliski, Dr. Rathau Ratnoff and Dr. Harry S. Mackler.

Dr. Denzer urged the society to develop its own plan for the treatment of the indigent, in order to keep the problem out of politics and prevent coercive legislation. He said a reorientation of the care of the medically indigent seems inevitable.

Dr. Roberts advocated consideration of the various methods of prepayment, share-cost, spread-cost theory of health insurance, under which the costs of medical treatment are shared by large groups and spread over a period of time, as in regular indemnity insurance.

According to Dr. Roberts, ordinary workers under this plan would become self-supporting independent purchasers of medical care. He asserted that the share-cost, spread-cost systems were the solution, and that the initiative in adopting their principle should come from organized medicine unless it wished to see such plans devised and operated by others less competent.

Action is clearly indicated," he added, "because action is desired by the people and in this democracy of ours what the people want they usually get sooner or later."

Dr. Boas, a son of Professor Franz Boas, the anthropologist, warned against a blind opposition by doctors to plans designed to bring medical aid to the needy. He said such opposition might bring destruction or restriction of private practice among the low income groups and the substitution of voluntary health insurance systems among the middle income groups.

The monthly meeting of the Medical Society of the County of New York on October 23 at the New York Academy of Medicine listened to addresses on 1. Historical Sketch of the Development of Endocrinology, by H. M. Evans, M.D., director of the Institute of Experimental Biology, University of California, and 2. Physiology of Anterior Lobe of Pituitary Gland, by J. B. Collip, M.D., professor of Biochemistry, McGill University.

Dr. Richard J. O'Connell, Jr., an associate visiting surgeon of Bellevue and Knickerbocker hospitals, received an award of \$100,000 from a jury on October 19 in an action before Justice Peter M. Daly of the Supreme Court in Queens, against Westinghouse X-Ray Company, Inc., 21-16 Forty-third Avenue, Long Island City, in which he alleged that he suffered x-ray burns while using one of the defendant's machines, causing him to undergo partial amputation of

two fingers of his right hand and one finger of his left hand since December 31, 1937

The verdict was returned by a jury of eleven men and one woman after six hours' deliberation. The legal department of Westinghouse Electric and Manufacturing Company, of which the x-ray firm is a subsidiary, plans to appeal the verdict.

The Comitia Minora of the Medical Society of the County of New York has recommended the following resolution for adoption by the county society:

"Resolved, that the Medical Society of the County of New York (1) reaffirms its approval of a form by which certification of the fact of death and of the cause of death are recorded on separate forms in a manner whereby the Department of Health may reproduce and release to private parties, certificates of the fact of death without revealing the reported cause of death, and (2) depletes the fact that, after obtaining the Society's approval to the use of such a form in the Borough of Manhattan (County of New York) commencing January 1, 1939, and encouraging the physicians of this County to believe that they could freely report medical diagnoses without fear of having the information used for other than public purposes, the Board of Health, without consulting the Society or advising it, in advance, of its contemplated action, voted on June 13, 1939, to make the information contained in physicians' confidential medical reports filed in connection with certificates of deaths from natural causes in the Borough of Manhattan since January 1, 1939, accessible to a life insurance company, thus betraying the confidence of the physicians, and be it further

"Resolved, that the Medical Society of the County of New York strongly protests against this action of the Board of Health and urges, in the interests of the public health which require the collection of accurate data concerning morbidity and mortality, that this action be reconsidered and that the disclosure of information from physicians' confidential medical reports to private parties be discontinued forthwith."

The death rate for mothers from causes associated with childbirth is 3.2 to 1,000 live births so far this year, the lowest record since New York City has been keeping vital statistics, Dr John L. Rice, City Health Commissioner, reported on October 10. In the comparable period of 1936 the rate was 4.7, in 1937, 4.2, and last year, 3.8.

For this steady decline Dr Rice commended the work of the special committees on maternal welfare of the medical societies.

#### Onondaga County

Dr Rollin L. Bauchspies, captain in the army medical corps, and professor of military science and tactics at Syracuse University College of Medicine, gave an illustrated talk on "Medical Services of the United States Army in the Field" at the initial fall meeting of the Onondaga County Medical Society at the College of Medicine on October 3.

#### Ontario County

Officers elected at the annual meeting of the Ontario County Medical Society held at Canandaigua, October 10, follow: president, Dr Albert

G. Odell, Clifton Springs, pres.-elect, Dr Malcolm R. Blakeslee, Shortsville, secy.-treas., Dr Daniel A. Eiseline, Shortsville, delegate to State Society, Dr Homer J. Knickerbocker, Geneva, alternate, Dr Melville D. Dickinson, Jr., Geneva, board of censors, Dr M. Edgerton Duell, Geneva, Dr Philip M. Standish, Canandaigua, Dr Major W. Gasper, Gorham.

#### Oswego County

The Oswego County Medical Society met at the Elks Club, Oswego, Wednesday, October 25. Dinner was at 6:30.

Program: Dr Eldridge H. Campbell, Johns Hopkins, Medical School, professor of neurosurgery, Albany College—subject, "Diagnosis and Treatment of Brain Tumors." Dr Stanley Alderson, assistant surgeon, Albany City Hospital, Albany—subject, "Intestinal Obstruction."

#### Otsego County

At a meeting of the Otsego County Medical Society held on September 29 at the Cooper Inn in Cooperstown, with thirty-five members in attendance, Dr Ralph Horton, of Oneonta, was nominated for president for the coming year. The election takes place at the December meeting.

Other nominations were: Dr C. C. McCoy, of Cooperstown, vice-president, Dr F. J. Atwell, of Cooperstown, secretary, Dr F. E. Bolt, of Worcester, treasurer, and Dr E. C. Winsor, of Schenectady, censor.

The addresses of the occasion were given by Dr Campbell, of Albany, and Dr Scarff, of New York City.

#### Queens County

The Medical Society of the County of Queens, listened to this program on Tuesday, October 31, "Carcinoma of the Colon and Rectum" by Richard B. Cattell, M.D., of the Lahey Clinic, Boston, "Treatment of Cancer of the Breast," by Frank E. Adair, M.D., surgeon, Memorial Hospital, surgeon, New York Hospital, Remarks by G. Allen Robinson, M.D., chairman of Council on Cancer.

#### St Lawrence County

Dr Harry Gold, of New York City, gave a lecture on "Therapy in Heart Disease" before the Medical Society of the County of St. Lawrence at the fourth of the lecture series held at the A. Barton Hepburn Hospital auditorium in Ogdensburg on October 5. The lecture was preceded by a dinner at the Crescent Hotel.

Following the lecture by Dr Gold, physicians heard Dr F. M. Miller, Jr., of Utica, talk on Medical Indemnity Insurance, a plan to be put into effect in Oneida County.

The medical group appointed a committee, of which Dr Fred E. Clark is chairman, to investigate the possibilities of organizing a medical and surgical plan to be incorporated in St. Lawrence County.

#### Schenectady County

A new germ-killing ultraviolet lamp that eventually may be used in hospitals and air conditioning systems, has been developed by General Electric research engineers.

Demonstrated on October 5 for the first time before members of the Schenectady County

Medical Society engineers said a series of in vestigations showed the lamp would kill bacteria in 113 cubic feet of air per minute.

Several hospitals are experimenting with the lamp to sterilize circulated air and to form a germ killing curtain with its rays over cubicle entrances to protect patients from cross infection.

From 2 to 5 o'clock the guests were shown through the works visiting various departments and watching operations. At 5:30 dinner was served in the works restaurant after which Wendell M. Nelson gave a short talk on safety and exhibited some safety devices, including shoes, goggles and respirators.

#### Seneca County

At the annual meeting of the Seneca County Medical Society at Willard on October 11 Dr. John H. Travis, superintendent of Willard State Hospital, Dr. O. A. Kilpatrick, attending physician at Willard State Hospital, and Dr. Stanley B. Folts, of Lodi, New York, were elected to membership.

It was recommended by the Public Relations Committee that the Seneca County Medical Society should staff and operate preschool and other clinics, but no action was taken in this matter.

A movement to organize a woman's auxiliary was approved and the matter was referred to a committee.

The society voted to institute proceedings to make the society a membership corporation.

A resolution was passed by the society to the effect that none of its members would treat welfare patients referred by the County Commissioner because the original physician of choice had exceeded his welfare quota, except in cases of emergency.

Dr. L. M. Lockie of Buffalo gave a discussion on arthritis and Dr. T. M. Maloney, of Geneva, discussed the newer drugs in the treatment of arthritis.—*Reported by Duane B. Walker, M.D., Secretary.*

#### Sullivan County

The 180th annual meeting of the Medical Society of the County of Sullivan was held at the Lenape Hotel in Liberty, New York, on October 18, 1939, at 8:30 p.m. The following officers were elected for the year 1940: president, Dr. Harry Golembe, Liberty; vice-president, Dr. Ralph S. Breakey, Monticello; secretary, treasurer, Dr. Deming S. Payne, Liberty; delegate to State Society, Dr. Irving Greenberg, Fallsburgh; alternate delegate, Dr. Louis Launer, Liberty; board of censors, Doctors Duggan, Kornblum, Launer, Mills, and J. M. Rosenthal; compensation committee, Doctors Breakey and Jacobs; alternates to compensation committee, Doctors Golembe and Seiken.

Following the business meeting a scientific lecture was delivered by Dr. Charles Solomon

attending physician, Brooklyn Jewish Hospital. The topic, Therapeutics of Sulfanilamide and Sulfapyridine, Indications, Contraindications, and Dangers, was very timely and well received.—*Reported by Harry Golembe, M.D., President.*

#### Tompkins County

The regular meeting of the Medical Society of Tompkins County was held on October 17. A most interesting and timely talk and moving pictures were presented on medical service of the United States Army in the field by Captain Rollin L. Bauchspies, of the Medical Corps of the United States Army and professor of Medical Science and Tactics in Syracuse University.—*Reported by Willet Wilson, M.D., Secretary.*

#### Warren County

Dr. Herbert A. Bartholomew of Glens Falls was elected president of the Warren County Medical Society at the annual meeting on October 11, at Glens Falls.

A scientific program was presented after the business meeting devoted to the subject of obstetrics. The speaker was Dr. Newell W. Philpott, assistant obstetrician and gynecologist, Royal Victoria Hospital, Montreal.

#### Wayne County

On invitation of Dr. Deegan the Wayne County Medical Society held their meeting and luncheon at the Herman Biggs Memorial Hospital, Ithaca, New York, October 7, 1939.—*Reported by James L. Davis, M.D., Secretary.*

#### Westchester County

The Westchester County Medical Society at its October meeting, New York Hospital Westchester Division in White Plains, announced the inauguration of a third annual series of post graduate 'refresher' courses for members of the society. The 'refresher' sessions are held in various parts of the county and consist of an afternoon devoted to brief practical lectures and scientific discussions conducted by local physicians specializing in the various fields of practice covered by the program.

The public health committee under the chairmanship of Dr. Edward H. Marsh of White Plains announced the first of these sessions for October 18 at Lawrence Hospital, Bronxville.

In November a program on 'Laboratory Aids in Clinical Practice' is being given by Dr. Gilbert Daildorf, director of laboratories of Grasslands Hospital, and Dr. Ward H. Cook, director of laboratories of the City of Yonkers.

In December a program on 'The Prevention and Treatment of Acute Infectious Disease of Childhood' will be given by members of the public health committee.

The Yonkers Academy of Medicine held its annual dinner on October 18 at the Hudson River Country Club, Yonkers.

The United States Board of Health claims that 75 per cent of heart disease develops in children under the age of 10 as compared with about 13 per cent in persons past the age of 40.

Doctor (commenting on lawyer who has just finished his speech to the jury) 'If he had his conscience taken out it would be a minor operation.'—*Rocky Mt. Med Jour.*

# The Woman's Auxiliary

## To the Medical Society of the State of New York

**S**ARATOGA SPRINGS, the "Laughing Waters" of the Iroquois, was the convention city for the executive board of the Woman's Auxiliary to the Medical Society of New York State, October 17 and 18. The historic background of the locality together with October's bright blue weather lent to the meeting a zest subconsciously felt by all the delegates.

The convention was opened on October 17, with a delicious dinner at unique Ashgrove Products House, with Mrs G Scott Towne, the state president, as hostess. Mrs Thomas Bullard, vice-president of Saratoga County Auxiliary, extended to the forty-one members present, a warm welcome to Saratoga Springs. Briefly reviewing the history of Saratoga Springs, naming the notable men who have visited the spa and helped make the history of our country from colonial times to the present, Mrs Bullard made us feel that we were really on historic ground.

At ten o'clock Wednesday morning, October 18, the executive board meeting was held in the Nurses' Lounge, Cramer House, Saratoga Hospital, with Mrs Towne presiding. Forty-one members answered roll call. Reports were read by officers, committee chairmen, and county auxiliary presidents. The budget for the year was adopted. Mrs Towne, in her report, stated that New York State had again won the silver vase award for the greatest increase in county auxiliaries organized during the year. The organization committee chairman reported that five new counties—Broome, Erie, Oneida, Sullivan, and Washington—have joined the state ranks and there is promise of other counties organizing in the near future. A good cause will gather strength as its ideals are pursued. The special revisions committee suggested some changes to be made in the constitution and suggested that the Auxiliary elect a smaller nominating committee and a business group from the members of the executive board. These sug-

gestions are to be acted upon before the next meeting. Reports of county auxiliary presidents gave evidence of the importance of and general interest in medical auxiliary work.

At this time recess was called by the president and the meeting was adjourned until after luncheon which was a "Dutch treat" at Ashgrove Products House.

The afternoon session convened in the Nurses' Lounge. New business was brought before the board and discussed. One of the projects of the State Auxiliary for the year is to give financial aid to the Physicians' Home located at Stamford. Mrs Carlton Potter, the treasurer, announced that a number of gifts have been received from county auxiliaries to assist in this worthy cause. A beautiful piece of needlepoint, made by Mrs Edwin Griffin, is to be sold to raise a larger sum to donate to the Home. Mrs Luther Kice, president-elect of the State Auxiliary, reported that plans are being made for the New York convention to be held in May, 1940, and the national convention in June, 1940, in New York City.

After the meeting the guests spent the remainder of the afternoon in taking mineral baths and in sightseeing trips. Each guest was given a carton of Saratoga Springs mineral water.

The two days' session closed with a buffet supper and bridge party given by the Saratoga County Auxiliary at Newman's Saratoga Lake-house.

With the manifest feeling of friendliness, and all working together in a common cause—self-education, cooperation with each local medical society, education of the public in matters of health—the Woman's Auxiliary looks forward to the realization of its ideals. A welcome is extended to those counties which have joined the auxiliary this year and a warm welcome awaits all those which have not yet organized.

The next executive board meeting will be held in February at Albany.

### County News

#### Cayuga County

The regular monthly meeting of the Woman's Auxiliary to the Medical Society of Cayuga County was held October 25 at Auburn City Hospital, Mrs Raymond Johnson, the president, presiding. Plans were made for an open meeting in November when Dr George B Adams will speak. Dr Adams is Director of Cayuga County Laboratory and will have as his subject "Laboratory Service in Cayuga County."

#### Jefferson County

An interesting project sponsored by the Woman's Auxiliary to the Medical Society of Jefferson County was an essay contest throughout the county. The subject was "Highway Hazards." The contestants numbered 102—students twelve to fourteen years of age. The

prize was won by Emma Lawler, fourteen years old, of Alexandria Bay High School.

Thursday, October 19, under the auspices of the Woman's Auxiliary, Dr Lucy M Cobb, noted psychiatrist of Utica, lectured on "This Business of Living" at the Sherman School Auditorium, Watertown.

#### Kings County

The second annual Health Institute of the Woman's Auxiliary to the Medical Society of the County of Kings, held on October 10 at the Medical Society building, attracted a large and interested gathering. Mrs Milton B Bergmann, president, greeted the guests and introduced the speakers.

Dr Philip I Nash, president of the Medical Society of Kings County, gave an address of welcome. Dr Charles Solomon, chairman, Sub-

committee on food and drugs of the Public Health Committee, spoke on "The Evils of Self medication," and Dr Walter Bromberg psychiatrist in-charge, Court of General Sessions, New York City Police Department had as his subject "Marihuana."

Other speakers spoke on various phases of tuberculosis, its causes and methods of prevention. They were Dr Adele Streeseman chairman, Advisory Council Woman's Auxiliary Dr Jean A. Curran, Long Island College of Medicine Dr Herbert R. Edwards director Tuberculosis Division Department of Health Dr Thomas A. McGoldrick Medical Director St. Anthony's Hospital Dr Foster Murray Director of Tuberculosis Kingston Ave Hospital, and Dr Eugene R. Marzullo chairman Public Health Committee.

The Health Institute was arranged and presented by the auxiliary as its contribution toward Health Education. Representatives of the Board of Health and the Brooklyn Tuberculosis and Health Association presented exhibits and demonstrations in an effort to curb the disease.

#### Orange County

An executive meeting of the Woman's Auxiliary to the Medical Society of the County of

Orange was held at the home of the president Mrs. H. F. Pohlmann, of Middletown on October 10. Tentative plans were made to hold another Health Institute such as the one held in the spring.

Several members of the newly organized Sullivan County Woman's Auxiliary were guests at this meeting and of Mrs. Pohlmann at an informal tea given after the meeting.

Members of the Orange County Auxiliary have been invited by the Rockland County Auxiliary to attend a tea at the country club at Suffern on November 14.

#### Rensselaer County

The first fall meeting of the Woman's Auxiliary to the Medical Society of Rensselaer County was held in the McKean Staff House of Leonard Hospital. Mrs. James H. Donnelly the president, presided. Dr. Eugene F. Connally spoke on "Some Methods Used in Diagnosis and Treatment of Cancer." Reviewing past and present methods of work with cancer Dr. Connally praised the aid given practitioners by modern pathologic laboratories and by the increased use of x-ray.

Mrs. Connally wife of the speaker was in charge of the program. A social hour followed the meeting.

#### ANTITETANUS IMMUNIZATION

All soldiers in France are now required by law to be given antitetanus immunization. In 1938 over 400,000 were vaccinated. The immunity varies considerably. It may drop to a minimum level within ninety days after the second injection or retain a high level over a period of years. This basal immunity which is probably lifelong is rapidly and markedly accelerated at any time with an injection of toxoid.

Rogers (*Bull New York Acad Med* 15 553

August 1939) has suggested that active tetanus immunization should be given to those who are sensitive to horse serum to asthmatic patients and other allergic individuals if they are in occupations or indulge in avocations which carry with them danger of injury. He includes in an optional group children especially those living in the country or those who ride and nonallergic individuals engaged in hazardous occupations or avocations.

#### SOCIETY FOR THE STUDY OF SYPHILIS

The local office of the United States Public Health Service, with headquarters at the Sub-Treasury Building Wall Street, New York City announces the beginning of a "Society for the Study of Syphilis." Membership is offered to all physicians in Greater New York City interested in the diagnosis and treatment of syphilis. There will be no dues.

The basic program of the Society will be by and for the general practitioner of medicine. Informal meetings are planned at which physicians can discuss their problems with an "Information Please" board of invited specialists. These men will be available to answer specific problems and discuss definite phases of interest to the membership.

Doctors C. C. Pierce and M. F. Haralson active in this district in venereal disease control are participating in the formation of this Society. A representative group of physicians is being invited to act as an Advisory Board. These physicians will be selected from the various boroughs of the city.

The Bureau of Social Hygiene of the New York City Department of Health has agreed to donate secretarial services, announcements, and meeting room so that no membership fee will be necessary.

Physicians in the city who are interested are requested to write to the Acting Secretary Society for the Study of Syphilis Room 829 125 Worth Street, New York City.

# Across the Desk

## The British Doctor Prepares for the Worst

**W**E HAVE just fifteen minutes," is a statement repeated over and over in London conversations. It means that in fifteen minutes from the time raiding bombers are detected over the English Channel, they will be dropping bombs on London. So any emergency setup must be ready in that time, and not the least important of these is the medical first-aid station, with the doctor in charge, fully prepared for the worst.

London is sprinkled with patriotic signs—Nelson's monument carries a huge one saying, "IT'S UP TO YOU"—and the British physician must thrill as he looks at it, for it's up to him in grim reality. No matter what others do, his work is in the danger zone, and, as Lord Horder remarked during a debate in the House of Lords, the first air raids must count among their casualties a large number of medical men.

### The Machinery Clicks

The last war found the British doctors willing and anxious enough to play their part, but with no emergency organization prepared in advance to classify their members according to their various abilities, to distribute them where needed, or to safeguard their interests. This time the British Medical Association got in touch with the government many months ago and drew up a classified index of medical practitioners for use in war, and this voluntary national register has been kept continually up-to-date.

The supply and distribution of doctors is practically entirely in the hands of the Central Emergency Committee of the British Medical Association, where it has been placed by the Ministry of Health. The Central Committee works through a network of Local Emergency Committees, and not only supplies the medical man power for the armed forces and civilian requirements, but draws up plans to protect the practices of absentee doctors, both general practitioners and consultants and specialists.

Fully 95 per cent of the British medical profession have placed their services at the command of the Emergency Committee and with millions of the various city populations transported to rural districts for safety, the dislocation of medical practice is evident. This is all provided for, however, and no patient will lack a doctor and no doctor will be idle. Some doctors will give their full time, some part time. The full-time ones are Class A, and will receive all the way from \$7,000 a year for "consultant advisers" down to \$1,750 for "house officers." Class B doctors receive from \$13 a session, for consultant and specialist work, down to \$3 a session for general practitioners. Women doctors are received on the same terms, but, in cases of ration-allowance, get only 80 per cent of the allowance for men.

### The Doctor Under Fire

The most dangerous place for the doctor is the first-aid post. These posts are scattered all over London and other cities so thickly that no wounded will be very far from succour. The

post staff will protect the hospitals from a rush of minor cases by treating the lightly wounded and sending them home, and will give first aid to the more serious cases—arrest hemorrhage, relieve pain, and prepare them to go to the casualty hospitals with the least possible harm. Each first-aid post is in charge of a physician, who has instructed the lay workers under his control, and there are in Great Britain about 2,000 of these posts. For every 100,000 of the population, there are sixty men and women trained in first aid work and forty men trained in rescue work.

The British medical journals have been running articles for months on the treatment of war wounds, and every medical gathering has been hearing lectures on this subject, which very likely may be gathered and published in book form, valuable to have here if the U S A should unhappily be drawn in. A Hartford surgeon, Dr C W Goff, attended one of these lectures, by Sir John Fraser, in Edinburgh, and tells about it in his state medical journal. Sir John described the expected intense shock from hemorrhage produced by the bursting of a modern aerial bomb, its casing marked off in small squares, making a veritable hail of small, sharp fragments. These will produce multiple deep wounds, any one of them liable to sever an important artery.

A particularly startling effect of a new high explosive bomb was explained. This bomb can produce death by concussion, without wounding, at 400 yards. The overwhelming concussion sends the air and gases under tremendous pressure into the respiratory tract and produces death by multiple hemorrhages within the lungs and sinuses. The air-raid reports from Spain, Abyssinia, and China have been studied, and strategic data found for building modern air-raid defenses.

All persons with open wounds will have a prophylactic dose of tetanus antitoxin, and supplies are stored at more than fifty centers in England and Wales, so as to be quickly available at both hospitals and first-aid posts. Supplies of gas gangrene antitoxin, too, are being held in the big centers throughout the country, and will be available wherever required. Special types of injury will be sent to special centers, where they will be treated by appropriate specialist staffs.

### Operating in Gas Masks?

The operating rooms at the hospitals and first-aid posts are of course protected in every possible way by barricades and gas-proof doors, and are in many cases underground, but it is still not at all unlikely that gas may creep in, so that everyone—patient, surgeon, and nurses—may have to wear gas masks. One surgeon, Mr J S Rowlands, planned a rehearsal at his hospital, with the entire operating-room staff masked, but gave up the idea and wore the mask alone during an operation for disarticulation at the cubometatarsal joint. Then he met a series of problems, as we are told in the *British Medical*

*Journal* The coarser part of the operation, the disarticulation, was accomplished, but, when it came to the finer points he was compelled to discard the mask—he found it entirely unsuited to this work. It is also suggested that if the patient has to wear a gas mask, the choice of an anesthetic will be limited.

### The Radium Peril

It fortunately occurred to someone that if any quantity of radium was dispersed by a bomb explosion in an air raid, the debris in which it was scattered and all the surrounding area would for many years be a menace to everyone living there. The inhalation of 0.01 mg would probably be fatal. So it was decided to take steps to locate all owners and holders of radium and make arrangements for its safe custody. That was in last May. Now we read in the *J.A.M.A.* (Oct. 14) "Most of the national stock of radium has been buried at the foot of a fifty foot hole specially drilled for use in war time at one of the hospitals. The radium and its containers are in a steel cylinder which before being lowered was loaded at the well head by an operator who stood for protection behind a thick block of lead. This valuable stock of radium is thus protected against risk of accident not only with the object of preserving it but as a safeguard against the damage which might be caused if it should be scattered by an explosion. For the present, high voltage roentgen therapy will be used instead of radium treatment wherever possible. The resumption of radium treatment in some parts of the country will soon be considered."

### Huge Problem of Blood Transfusion

Another problem is the supply of blood for transfusion. It seems that experience in Spain showed that at least 10 per cent of air raid victims are so badly wounded as to need blood transfusions, so it became essential to organize an adequate scheme for the supply of blood for a large number of transfusions. Accordingly London was divided into sectors each one with a "blood-supply officer" to set up stations for listing and testing blood donors.

Spain's war also showed the wisdom of collecting and storing large quantities of blood in adequate plants for refrigeration and sterilization, and four depots have been provided in the London area each equipped to store about 1 000 bottles. Blood will be dispatched from these as needed in refrigerated vans. Each depot is expected to have a panel of 20 000 volunteer

donors, of whom some 8 000 will be universal donors.

Many thousands of volunteer donors have already been tested and listed. Some figure that for central London 100 000 donors will be needed, and for Greater London and environs 250 000. It is planned, if food grows scarce to give the donors extra rations to keep up the quality of their blood.

### Transfusion Syphilis Suggested

A danger is pointed out by the director of the Whitechapel Clinic—that syphilis may be transferred from an infected donor to a healthy recipient. This risk is very real he says in a letter to a London medical journal and so far as can be ascertained, there are few blood transfusion empaneling centers in which examination of volunteer donors for syphilis is carried out as a routine. He then proceeds to cite articles from thirty medical journals British, French and American reporting cases of transfusion syphilis and adds: "This gives a total of over forty cases of transfusion syphilis occurring under peace-time conditions and probably a great many more instances have occurred but have not been diagnosed as such. It is obvious that if one out of every ten persons wounded in air raids requires blood transfusion the danger under war time conditions will be very much greater unless the most careful measures are taken to eliminate syphilitic donors. In most instances it would appear that the donors causing transfusion syphilis were in the latent phase of the disease and were quite unaware of their infection. In some instances the donors were serologically negative being in the pre-chance or incubation stage of syphilis."

### A Disquieting Thought

It has been found according to the *New England Journal of Medicine* that the milk distributing plants have all the needed facilities for storing refrigerating and distributing the blood for transfusions. The total capacity of the plant may not be needed for the blood supply and the delivery of milk may even be made in the same vans. Winter mornings are cold and dark in blacked-out London and mistakes are only natural. However the housewife cannot be expected to view with equanimity the appearance of a quart of blood on her back stoop in place of the accustomed Guernsey nor will even a British surgeon accept complacently a pint of medium cream for an intravenous pick-me-up.

W. S. W.

### AMERICAN BOARD OF OPHTHALMOLOGY

*Written Examination* March 2 1940 in various cities throughout the country. This will be the only written examination in 1940.

All applications for this examination must be received before January 1 1940. All applicants must pass satisfactory written examination before being admitted to oral examination.

*Oral Examination* New York City June 8 and 10. Fall examination to be announced later.

*Case Reports* Candidates planning to take June examination must file case reports before March 1.

For application blanks write at once to Dr. John Green 6830 Waterman Ave., St. Louis, Mo.



# Books

Books for review should be sent to the Book Review Department at 1318 Bedford Avenue, Brooklyn, N. Y. Acknowledgment of receipt will be made in these columns and deemed sufficient notification. Selection for review will be based on merit and the interest to our readers.

## RECEIVED

**Attaining Womanhood. A Doctor Talks to Girls About Sex.** By George W. Corner, M. D. Duodecimo of 95 pages, illustrated. New York, Harper & Bros., 1939. Cloth, \$1.00.

**Office Gynecology.** By J. P. Greenhill, M. D. Octavo of 406 pages, illustrated. Chicago, The Year Book Publishers, Inc., 1939. Cloth, \$3.00.

**Diseases of the Ear, Nose and Throat. Principles and Practice of Otorhinolaryngology.** By Francis L. Lederer, M. D. Second edition. Quarto of 840 pages, illustrated. Philadelphia, F. A. Davis Co., 1939. Cloth, \$10.

**Sterility and Impaired Fertility. Pathogenesis, Diagnosis and Treatment.** By Cedric Lane-Roberts, F. R. C. S., Albert Sharman, M. D., Kenneth Walker, F. R. C. S., and B. P. Wiesner, Ph. D. Octavo of 419 pages, illustrated. New

York, Paul B. Hoeber, Inc., 1939. Cloth, \$5.50.

**Hospital Public Relations.** By Alden B. Mills. Octavo of 361 pages, illustrated. Chicago, Physicians' Record Co., 1939. Cloth, \$3.75.

**Diseases of the Foot.** By Emil D. W. Hauser, M. D. Octavo of 472 pages, illustrated. Philadelphia, W. B. Saunders Co., 1939. Cloth, \$6.00.

**Nutrition and Diet in Health and Disease.** By James S. McLester, M. D. Third edition. Octavo of 838 pages. Philadelphia, W. B. Saunders Co., 1939. Cloth, \$8.00.

**Gynecology, Medical and Surgical.** By P. Brooke Bland, M. D. Third edition. Quarto of 843 pages, illustrated. Philadelphia, F. A. Davis Co., 1939. Cloth, \$8.00.

## REVIEWED

**Clinical Gastroenterology.** By Horace W. Soper, M. D. Quarto of 314 pages, illustrated. St. Louis, C. V. Mosby Co., 1939. Cloth, \$6.00.

This practical and profusely illustrated book presents an outline of gastroenterology which should make an immediate appeal to the busy practitioner. The text on each subject is short and factual, and consequently makes easy reading. The validity of dogmatic statements is supported in many cases by data from the experience of a successful physician who relieves his patients. Chapters on ulcer and colon conditions are sound, and present many helpful and practical suggestions both in diagnosis and treatment.

Some of the therapy advised is empiric, and calomel again assumes importance in the treatment of many conditions. The author devotes a chapter to the case against milk as a food, claiming that gastric ulcer in adults and children, as well as poliomyelitis, are due to the streptococcus in raw milk. That pasteurization is not a sure protection, and that the only proper milk for human consumption is evaporated are two other themes developed. Finally one is warned against "hypodermic injection cures for ulcer, the wild claims made by allergists in the cure of many gastrointestinal conditions, colon irrigations, and the multitude of new drugs and vitamin preparations with which we are bombarded."

Gastroenterology is truly made simple by omitting much of the scientific material which has accumulated in this subject during the past decade.

HENRY F. KRAMER

**Surgical Treatment of Hand and Forearm Infections.** By A. C. J. Brickel, M. D. Quarto of 300 pages, illustrated. St. Louis, The C. V. Mosby Company, 1939. Cloth, \$7.50.

This single volume of 300 pages with 166 text illustrations and 35 plates, 10 of which are in color, is well bound, and printed on excellent paper, with a clear type. The method here presented differs radically from any of the previous works on the same subject. The author has spent four years of special study in the anatomic laboratory at Western Reserve University preparing the data as it appears in his book.

The first chapter consists of fourteen plates, both in color and in black and white, illustrating the anatomy of the hand and forearm. The dissection represented in each plate is described in the accompanying text. Following each plate is a series of clinical notes which interpret the anatomy in terms of various surgical approaches and procedures.

Every conceivable type of infection, including human bites, is described and illustrated by a specific case as seen in the hospital. Photographs of the lesions thus described accompany nearly all of them. The influence of systemic diseases upon hand infections is properly emphasized.

A great many x-ray plates taken after the injection of the various fascial spaces, bursae, and tendon sheaths, with an opaque substance, disclose vividly the anatomic relationship of these structures one to another. Most of the illustrations accompanying the text are actual photographs of patients who have been under the care of the author or his associates. In many instances a picture of the preoperative lesion is followed serially by photographs of the immediate and the final postoperative results.

For anyone who may be called upon to assume the responsibility of handling these ever serious hand infections, whether he is a general practitioner, a surgeon, or one doing compensation work, this book is most highly recommended.

MERRILL N. FOOTE

# NEW YORK STATE JOURNAL *of* MEDICINE

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## *Editorial*

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### The American Way

"The best program for medicine should be the product of the best minds of the American people. I propose that it be written by physicians, and when approved by organized medicine that it be submitted to the Congress. I believe that we should try to find an American Way—built upon the sound foundations of American experience."

NATHAN B. VAN ETTE, M.D.,  
*President-elect, American Medical Association*

According to newspaper reports, the A.M.A. will soon offer a health program, based on its estimate of current requirements, as a substitute for the Wagner National Health Bill\*. This is welcome news to the many physicians who believe that opposition to ill-advised lay schemes would be immeasurably strengthened if the profession had a concrete counterplan of its own.

Many congressmen in their hearts realize that the Wagner Bill is a speculation rather than an investment in health. In the absence of any other specific proposal, however, they are afraid to vote "no" on the Wagner Bill, fearing that such a vote might be interpreted by their constituents as indifference to the public health. These senators and representatives would welcome a medically sponsored plan, based on actual conditions and designed to supply the need without concentrating unprecedented powers in a few appointive officials of the Federal Government.

The details of the A.M.A. plan have not yet been revealed. Judging by previous expressions of policy, however, it is safe to assume that it will provide for a Federal Department of Health to coordinate all national health activities, except those of the Army and Navy. It is a firm tenet of medical policy that such a department

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\* Since the writing of this editorial the eight principles of the A.M.A. program were announced on November 17, 1939, at the Conference of Secretaries of Constituent State Associations. See page 2318—Editor.

should be headed by a physician-secretary, with a seat in the Cabinet to assure him easy access to the President as well as to Congress

There is little doubt that the A M A plan will propose voluntary medical expense indemnity insurance to lessen the burden of illness on small and moderate wage earners. It will undoubtedly call for the expansion of medical services to the indigent—as dictated by demonstrable necessities, however, rather than political considerations. It will endeavor to enhance preventive medicine, and limit all extensions to recognized requirements.

There is great scope for governmental activity in public health, but it must be clearly understood where the boundaries of state control properly end and those of private practice begin. In the field of individual service it has repeatedly been shown that the quality of medical care is best when there is a minimum of bureaucratic interference with the physician. The A M A, with its insight into the problems of both private practice and large-scale administration, will know how to define the roles of private and public medicine so that there is no clash between the two.

### Above Ethics?

“Newspaper publications by a lawyer as to pending or anticipated litigation may interfere with a fair trial in the courts and otherwise prejudice the due administration of justice. Generally they are to be condemned. An ex parte reference to the facts should not go beyond quotation from the records and papers on file in the court, but even in extreme cases it is better to avoid any ex parte statement.”

The above is the twentieth rule in the *Canons of Professional Ethics of the American Bar Association*. It is commended to the attention of Assistant Attorney General Thurman Arnold and his associates in the antitrust suit against the American Medical Association.

From the outset of this action the Department of Justice's representatives have shown a blatant disregard of the ethical canon cited above and other rules of good legal manners. Charles C. Pearce, a special assistant to the U. S. Attorney General, made a public address in advance of the trial in which he spoke of “the formula of illegal procedure pursued by organized medicine” as if a verdict of guilty had already been brought in. Pretrial published statements of Mr. Pearce and others were not limited to “quotations from the records” but, as Justice James M. Proctor observed of the indictment proper, abounded “in uncertain statements” and “highly colored, argumentative discourse.”

Since the dismissal of the indictment against the A.M.A. by the Federal District Court, Mr. Arnold and his associates have continued to try this case in the press in spite of the fact that an appeal is pending. After the District Court had thrown out the antitrust charge against the A.M.A., Mr. Arnold issued a public warning to the profession not to commit acts that the Court had just declared legal. Asking the Supreme Court to waive the usual procedure and consider the case without a previous decision by the Circuit Court of Appeals, he broadly hinted that continued medical progress depended on the success of his plea.

In certain circumstances it is conceivable that a lawyer in the government's employ cannot be bound by the same ethical principles as attorneys in private practice. Certainly, there is nothing in the antitrust suit against the A.M.A., however (except the palpable artificiality of the charge), to account for the disregard of legal ethics that Mr. Arnold and some of his associates have displayed.

### Plumbism and Vitamin C

Chronic lead poisoning is one of those conditions in which a cure is difficult to obtain. The ingestion of high amounts of calcium salts to some extent alleviates the symptoms, but not to a degree sufficient to enable the person afflicted to regain his former activity. Increased irritability and nervousness are common complaints that accompany calcium therapy for this disease, and these may further incapacitate the sufferer from bad poisoning.

Holmes, Campbell, and Amberg,<sup>1</sup> in a study of 400 men exposed to lead daily, found 34 who showed signs and symptoms of chronic poisoning. They were impressed by the similarity of these findings to those exhibited in cases of subclinical scurvy, and selected 17 of the group to be treated with vitamin C alone. Following the oral administration of 100 mg. daily, a marked clinical improvement was noted within one week. A decided improvement in the color of the skin, the vigor of the patient, and his cheerfulness was apparent. There was a return to normal sleep, and tremors, where present before, disappeared. The blood picture likewise showed a return toward normal with a gain in the number of mature neutrophiles in the blood.

The other 17, who in addition to vitamin C continued the calcium therapy, did not respond as well as the other group, here the gain was less marked and there was no increase in mature neutrophiles. As in chronic alcoholism, where many of the symptoms are the result of vitamin deficiency, it would seem that lead intoxication also

<sup>1</sup> Holmes, H. N., Campbell K. and Amberg E. J. J. Lab. & Clin. Med. 24 1119 (Aug.) 1939

leads to an avitaminosis, and that it is on this basis that plumbism should be treated

## Carcinoma of the Lip

There is a marked difference of opinion between surgeons, dermatologists, and radiologists concerning the results obtained from the various measures employed for the treatment of carcinoma of the lip. This difference is probably due to the fact that both irradiation and surgery are equally efficacious forms of therapy when properly employed. Newell,<sup>1</sup> who made a comparative study of the merits of deep therapy, cauterization, and surgery, using the five-year follow-up as an index, reports the following:

The Mayo Clinic surgery yielded 80.3 per cent of five-year cures in 217 cases. At the Royal Prince Albert Hospital in Australia, five-year cures were reported in 90.3 per cent of 228 cases treated surgically and in 82.7 per cent of 70 cases in which radium alone was employed. At the University of Michigan Clinic, local destruction, with or without irradiation, gave 53.8 per cent of five-year cures in 49 patients.

Newell, reporting from Johns Hopkins, had 80.9 per cent five-year cures in 149 cases where the tumor only was excised, where in addition radical excision of the cervical glands was performed for metastases in 75 cases, only 22.5 per cent lived beyond five years. On the whole, his cures total 82.4 per cent from surgery where no metastases were present. From his evaluation, therefore, it would seem that there is little to choose between surgery and irradiation, since the use of each, individually, yields equally good results. On the other hand, local cauterization of carcinoma of the lip has not been attended with the success achieved by the other therapeutic means, regardless of whether or not it is followed by irradiation.

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<sup>1</sup> Newell, E. T., Jr. Arch Surg 38: 1014 (1939).

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### SCIENTIFIC EXHIBIT

Application blanks are now available for space in the Scientific Exhibit at the Annual Meeting at New York City, May 6, 7, 8, 9, 1940. Attention is called to the fact that applications close on January 1. Blanks will be sent on request to Dr. William A. Krieger, Chairman, Committee on Scientific Exhibits, 103 Hooker Avenue, Poughkeepsie, New York.

## Current Comment

"The economic issue, so far as it affects the practitioner, has been all but suppressed in most investigations. Yet there is little doubt that the preservation of the private practitioner's present economic status has been a major concern of organized medicine. The obvious truth is that the physician has as much right as any other citizen to demand economic conditions which will insure him a livelihood. Hard as their plight may be, members of the low income group have no more claim on him for medical care than they have on the corner grocer for food. Even in these days of open handed relief there are still Americans who refuse to become objects of a private practitioner's charity."—The *New York Times* of October 23, 1939, brings out a good point in its editorial discussion of "Medical Economics."

"We have witnessed with growing alarm the various movements being sponsored by various cults. In the interests of the health and welfare of the people these movements must be curbed and the public truly informed as to the deleterious results that such and similar movements would have on the health and general welfare of the public. A people so educated—a public that knows what medicine is trying to do—is the best safeguard that the profession of medicine, and the health of the people of the state can have."—The *Bulletin of the Los Angeles County Medical Association* recently emphasized the importance of sound public relations between the profession and the public.

'Politics and medicine are mutually incompatible—and though the two elements be ever so insistently shaken together, they will not mix. Medicine, having the greater specific gravity, must sink to the bottom of the bottle, to be overlaid by the frothy ill smelling layer of opaque politics above. The patient,

seeking medical care, will get mostly politics—unless he's strong enough to shake the whole bottle!"—From a current issue of the *Westchester Medical Bulletin*.

'One refuge in times of anxiety is to turn back to the simple things which lie at the heart of normal human life. In any society these will be the things that make life worth living. Indeed, they are the things that account for the persistence of our species. They are individual things, individually experienced, and in that way an answer to the mass manias around us.

"The spirit of freedom is not in laws and institutions alone. It is expressed in the expansion of the personal experience, in an individual's rather than a nation's room to grow, in the unlocking of human powers and human opportunities. No disaster can black out a nation which lives in that spirit.

"We cannot climb an ivory tower and cultivate our souls in indifference to the dark tumult which rises on every side. But we can build in a democracy, in peace, a kind of life that shall seem to all men desirable, and which, whatever the fate of liberty and men's hopes elsewhere, shall not be forgotten."—The *Reader's Digest* for November condensed an editorial from the *New York Times*, and we, in turn, desire to quote from it.

'Incident to the court action considerable misinformation was spread about the motives that impelled the Medical Association [the A.M.A.] to take its stand. The most senseless argument was that the doctors wish to operate as a clique which has no concern over the plight of persons in the lower income bracket. The thousands of hours of service which physicians the country over tender without thought of compensation, their cooperation in free clinics, their willingness to adjust fees to fit the pocketbooks of persons with small incomes, their vigilance in matters

regarding public health—all sufficiently answer the charge of callousness in the medical profession

"But many doctors are justly apprehensive over any attempt at socialization of their profession. They are fearful of federal encroachment on a domain where there should never be government domination with all its attendant political ills. Likewise they believe that state control of medicine would destroy initiative and discourage research, both of which are essen-

tial if the profession is to make progress. We are sympathetic with this attitude, believing that the best interests of all will be satisfactorily served if the profession continues as it has in the past, imposing all its own regulations on its members and contributing more than its share to the public weal. Expose the profession to politics, make it merely an unwieldy arm of the government and it will be wrecked."

—From an editorial in the October 24, 1939, *St. Louis Globe-Democrat*

### Prize Essays

The Merrit H. Cash Prize and the Lucien Howe Prize will be open for competition at the next Annual Meeting of the Medical Society of the State of New York, May 6, 1940.

The Lucien Howe Prize of \$100 will be presented for the best original contribution on some branch of surgery, preferably ophthalmology. The author need not be a member of the Medical Society of the State of New York.

The Merrit H. Cash Prize of \$100 will be given to the author of the best original essay on some medical or surgical subject. Competition is limited to the members of the Medical Society of the State of New York, who at the time of the competition are residents of New York State.

The following conditions must be observed:

Essays shall be typewritten or printed and the only means of identification of the author shall be a motto or other device. The essay shall be accompanied by a sealed envelope having on the outside the same motto or device and containing the name and address of the writer.

If the committee considers that no essay or contribution is worthy of the prize, it will not be awarded.

All essays must be presented not later than April 1, 1940, and sent to the Chairman of the Committee on Prize Essays of the Medical Society of the State of New York, 2 East 103rd Street, New York City.

EUGENE H. POOL, M.D., *Chairman, Committee on Prize Essays*

### 1940 M.D. License Plates

Physicians should apply directly to their local motor vehicle department offices by mail or in person. It is necessary to attach a prescription blank or stationery showing that the applicant is an M.D.

# DOCTORS, LAWYERS, AND INJURED BRAINS

IRVING J SANDS, M D , Brooklyn, New York

**A**UTOMOBILE accidents are on the increase. Injuries to the brain have been increasing, both in accidents as well as in industrial pursuits. Industrial compensation laws have been enacted in almost every state of our country. Greater demands are being made upon the medical profession in managing these patients. Moreover, medical men are now called both as witnesses and as experts in litigations following these accidents. An evaluation of the problem therefore, seems opportune.

There are certain anatomic peculiarities of the skull that predispose the brain to injury<sup>1</sup>. The upper surface of the orbital plate of the frontal bones contains numerous sharp ridges. The lesser wings of the sphenoid are also very sharp. The inner tables of the parietal and the squamous portions of the temporal bones contain several bony projections. The incisura tentorii has a very sharp edge and this makes it a potential menace to the adjacent brain structure. The meninges, the falx, and the tentorium, the large vessels and the cranial nerves, as well as the anatomic peculiarities of the cranial fossae, tend to limit the movements of the brain within the skull. Certain portions of the brain are, therefore, peculiarly susceptible to injury.

The frontal lobes are relatively free and, in injuries, their orbital surfaces are commonly contused and often lacerated because of the sharp ridges on the upper surfaces of the orbital plates of the frontal bones. The tips of the temporal lobes are lodged under the lesser wings of the sphenoid and they, too, are often contused or lacerated whenever there is a fracture involving these bony structures. The temporal and parietal lobes are more or less rigidly fixed within the skull, and they are commonly injured because of the

sharp spicules of bones from the adjacent inner tables of the skull. The occipital lobes, as well as the cerebellum, are fairly well protected by the adjacent venous sinuses and by the smoothness of the adjacent bone of the skull. Therefore, these parts of the brain are relatively spared in accidents. The pons and the peduncles are frequently injured because of the sharp edge of the incisura tentorii. The cranial nerves may be bruised and even lacerated. The arteries of the brain are more or less tortuous in their course and tolerate trauma fairly well. Occasionally, however, aneurysms of the cerebral vessels may result from an accident.<sup>2</sup> Still, a rupture of the large vessels of the brain is, indeed, a rare necropsy finding. The smaller vessels, however, are in intimate association with the brain tissue and are commonly injured. This is particularly true of the arteries of the pons.<sup>3</sup> The middle meningeal artery, because of its unique anatomic course, is not uncommonly injured or torn in fractures of the adjacent bone, and produces the well known syndrome of epidural hemorrhage.

The Virchow Robin lymph spaces are often ruptured at the time of an accident, cause disturbance in lymph circulation, and become a factor in brain destruction. The walls of the sinuses of the dura are strong and elastic and they tolerate trauma fairly well. However the petrosal sinuses may be contused or torn in fractures involving the petrous portions of the temporal bones.

At necropsy<sup>1</sup> the following types of brain injuries are encountered:

1. A heavy and soggy brain of brown or dark red appearance exuding blood-tinged fluid. Clinically, this type of lesion is characterized by nuchal rigidity, hyper-tonicity of the lower extremities, bilateral



Babinski, and marked delirium and excitement. The spinal fluid is usually blood-tinged, but occasionally it may be clear.

2 A heavy and edematous brain, showing extensive contusions and lacerations. Clinically this is characterized by subarachnoid hemorrhage, focal neurologic signs, cranial nerve involvement, and marked stupor.

3 A heavy and edematous brain, showing no lacerations or contusions macroscopically, but microscopically numerous punctate perivascular hemorrhages, especially in the brain stem, corpus striatum, and frontal lobes are found. This type is accompanied by the syndrome of cerebral concussion.

4 A heavy, edematous, and blood-discolored brain with lacerations and contusions and associated with subdural hematoma.

5 A heavy and edematous brain presenting minimal pial discoloration, no contusions or lacerations, but numerous subdural blood clots.

All of these types may occur with or without fracture of the skull.

The treatment of acute brain injuries has been fairly well standardized in most clinics.<sup>4-6</sup> An appreciation of the underlying anatomic and pathologic changes gained by experience, both in the laboratory as well as in the wards, is an indispensable prerequisite for the successful management of these patients.

Most serious brain injuries are accompanied by shock, which must receive first consideration in the treatment of the patient. When in shock, the extremities are cold and clammy, there is marked disturbance of consciousness, the pulse is generally rapid, although it may be slow, the respiration is irregular, rapid, and shallow, and there is marked perspiration. The patient should be kept in the Trendelenburg position. Heat must be applied to the extremities. Cardiac stimulants must be judiciously administered. Normal saline or 10 per cent glucose solution should be given intravenously or by hypodermoclysis. Blood transfusions may be necessary. All efforts must be directed to combat the

initial shock. The patient should be disturbed as little as possible during this period. An initial lumbar spinal puncture is advisable because it establishes the presence or the absence of subarachnoid bleeding and gives a clue as to the intracranial pressure. Subsequent spinal punctures will depend upon the presence or absence of subarachnoid hemorrhage. Blood in the subarachnoid space<sup>7</sup> tends to injure the brain tissue, occasionally plugs the arachnoid villi, and tends to increase intracranial pressure because it interferes with the osmotic pressure in the spinal fluid. Cerebral edema must be combated with hypertonic sucrose and occasionally with lumbar puncture. Excitement should be combated with appropriate medication. Sodium phenobarbital, sodium amytal, and paraldehyde are the drugs most frequently employed. Morphine should not be used, as it tends to depress the already disturbed medullary centers. After shock has been successfully treated, it is advisable to elevate the head of the bed to forty-five degrees. This procedure aids proper intracranial hydrodynamics and lowers intracranial pressure. Patients, as a rule, feel more comfortable when in this position.

Death in brain injuries generally results from massive cerebral hemorrhage, cerebral laceration, subdural or epidural hematoma, or from shock.

Most of the brain injury cases show marked improvement at the end of a week or ten days after admission to the hospital. Nevertheless, these patients should be kept in bed for at least three weeks to a month to allow the process of repair to occur.<sup>8</sup>

The relationship of fracture of the skull to brain injuries is fairly well understood by those who have had experience in treating such patients. A fracture of the base of the skull is frequently accompanied by laceration of the dura and arachnoid, subarachnoid hemorrhage, escape of cerebrospinal fluid, and cranial nerve lesions. Meningitis may complicate such fractures. Basilar fractures, therefore, have a grave prognosis. Fractures of the vault, unless they are accompanied

by tearing of the middle meningeal artery or veins, are generally benign and carry a favorable prognosis. The younger the patient, the more favorable is the prognosis.

In the vast majority of cases, it is advisable to postpone x-ray examination of the skull until the patient has entered convalescence. No patient while in shock should be subjected to the manipulations necessary for x-ray examination. However, whenever the patient shows signs of epidural or subdural hematoma, x-ray examination must be immediately made.

Rupture of the middle meningeal artery is usually recognized by the history of an accident with initial loss of consciousness, followed by a relatively lucid interval, and a secondary period of increasing loss of consciousness. Occasionally this lucid interval may be of such brief duration as to be unrecognizable. Its early recognition and the institution of adequate surgical measures will save the patient's life. The presence of subdural hematoma may be suspected when ever the patient who has suffered a head trauma begins to complain of headache a few days to several months or years after the injury, and who shows a slow pulse and disturbance in consciousness. Exploration by trephining the skull on both sides should be done, as this method alone will exclude the presence of a subdural hematoma. The dilated pupil<sup>10</sup> on the side of the hematoma is no longer regarded as an infallible localizing sign.

While the symptoms of acute brain injuries are thoroughly understood and fairly well managed, the greatest difficulties encountered are those signs and symptoms that follow after the patient has been discharged from the hospital. The train of symptoms following head injury are those of headaches, dizzy spells, undue fatigue, lack of concentration, irritability, impulsiveness, states of apathy, moody spells, loss of ambition, and impairment in efficiency. Fainting spells and convulsions may follow. Occasionally sensory disturbances in the nature of numbness, visual and olfactory hallucinatory phenomena, and peculiar episodes of

feeling of collapse are present. On examination of these patients, neurologic signs may or may not be detected. The symptoms are the result of glial and connective tissue scars<sup>11</sup> that have replaced the destroyed, hemorrhagic brain areas, of the contraction of these scars<sup>12</sup> and the consequent irritation of brain tissue, of subpial or subarachnoidal collections of fluid, of meningocerebral adhesions, of inadequate Virchow Robin lymphatic system drainage, of distortion of the ventricular system, and of disturbed intracranial hydrodynamics. Whenever neurologic signs are absent in these patients, spinal fluid and encephalographic studies should be done. The encephalogram may disclose meningocerebral adhesions, focal cortical atrophies, or variations in the size and shape or position of one or more of the ventricular horns. It may disclose the presence of a subdural hematoma. The electroencephalogram is still in the experimental stage.

Brain abscess, traumatic Parkinsonian syndrome, and massive cerebral hemorrhage<sup>13</sup> may be delayed complications of brain injury. Postencephalitic Parkinsonian states,<sup>14</sup> various clinical types of neurosyphilis, dementia praecox, or attacks of manic depressive psychoses may be precipitated<sup>15</sup> (not caused) by brain injuries.

Psychotic reactions resulting from brain injury are usually classified under the heading of traumatic delirium, Korsakoff syndrome, post-traumatic personality disorders, and post-traumatic mental deterioration. These reactions are known to those who have had experience and adequate training in managing these patients.

The most perplexing problems encountered in managing these patients are the various manifestations of behavior disorders that these patients show after they have recovered from the acute stage of injury.<sup>16</sup> The various conflicting opinions expressed by equally competent authorities have made this subject a matter for the cynic. This difference of opinion is in part due to the difference in training and experience of these authori-

ties A thorough training in neuro-anatomy, neuropathology, clinical psychiatry, and psychoanalysis is an indispensable prerequisite for the adequate evaluation of the behavior disorders of the large group of the post-traumatic neurotic patients For this reason the neuropsychiatrist (one who has had training and experience in all phases of the subject), rather than the super-specialist<sup>17</sup> (one who has received intensive training and has limited his experience to only one phase of the subject) in neuropsychiatry, is best qualified to pass opinion on the behavior disorders of these patients

The post-traumatic behavior disorders may be divided into four groups<sup>1</sup> (1) post-traumatic constitution, (2) traumatic neurosis, (3) traumatic hysteria, and (4) malingering

The term "post-traumatic constitution" should be limited to those patients who give a history of a head injury and who, on examination, present obvious neurologic signs or encephalographic changes, and who complain of headaches, dizziness, fainting spells, dysesthesias, paresthesias, and somatopsychic hallucinatory disturbances They occasionally have convulsions They show mood fluctuations varying from apathy and indifference, on the one hand, to irritability and impulsiveness on the other They lack the power of concentration, and display emotional instability and marked impairment in efficiency

"Traumatic neurosis" should be applied to those patients who have recovered from brain injuries and who complain of the above physical or mental disturbances, but who on neurologic examinations or encephalographic studies reveal no abnormalities Yet they show definite changes in their personality A thorough survey of their personalities will disclose rather pleasant, agreeable, self-supporting, and normally reacting individuals prior to their accidents However, following the accident they have become irritable, are given to brooding, are restless, easily excitable, cannot maintain any sustained effort, and are generally inefficient They

complain of dizziness, headache, are easily fatigued, and become quarrelsome This type of reaction frequently follows the cerebral concussion type of brain injury

The term "traumatic hysteria" should be applied to those people who have been in an accident, but who have sustained either no injury at all or an insignificant scratch or abrasion, in other words, the trauma to which they attribute all their difficulties has been an insignificant one A careful history will elicit evidence of neurotic types of personality, who utilize trivial accidents as an excuse for maladjustment in life Their ego has inflated its injured narcissism Frequently bad management on the part of the physician or legal advisors tends to fixate their symptoms

"Malingering" is a subject that is known to others besides neuropsychiatrists The trained neuropsychiatrist should find no difficulty in appraising the reaction of these patients However, even the most skillful physician has occasionally been misled by the complaints of these patients, particularly when they are sustained by corroborative evidence from the high-power salesmanship of some legal advisor

The management of head injury patients after they have left the hospital may tax the skill and ingenuity of many a physician Many patients will insist upon resuming their work even though they are unable to do so On the other hand, there are a few who will refuse to return to work even though they are capable of doing so The majority of them are able to work at the end of a month or so after they have left the hospital Many require a longer period of rest There are some, however, who cannot resume their original occupations because of the hazards inherent in their particular type of employment. Driving trucks, climbing scaffolds, and working in high places or in very noisy environments may have to be postponed for a long time, and occasionally altogether abandoned It may then become necessary to rehabilitate the patients and

train them along other occupational lines that may not be as hazardous as their original trades or occupations. Changes must be made in the patients' home situations, their social activities, and avocational pursuits. The families of these patients must be informed of the handicaps resulting from the injuries, and they must often be instructed in their proper reactions toward the patients.

In the management of these patients, the physician should be guided by the personality of the patients, the severity of the injuries sustained, and the general home environment. He must recognize any neurotic reactions that may result from thwarting home conditions, from situations arising as a result of litigation procedures, or from unsatisfactory compensation awards. He must train the patients to face reality in accordance with their own assets and abilities. He must warn against protracted litigations and may often advise lump settlements of compensation claims as therapeutic measures.<sup>18</sup> Each case must be judged as an entity, and must receive individual attention in order to obtain the best therapeutic results.

While the prime function of the physician is to treat the sick and restore them to as nearly normal states as possible, he often has secondary functions to perform that are involved in the medico-legal aspect of brain injuries.<sup>19</sup> The physician may be called upon to testify as to his findings at the time of his examination and to the treatment he has given the patients. Occasionally he is called upon as an expert by the attorneys representing either the litigants or the defendants in the case. In performing these functions, the physician should be guided by the very same ideals of professional conduct as at the bedside of the patients. He should try to give the same opinion on the witness stand as he would at a medical conference. When serving in the capacity of an expert, he should conduct himself as if he were called into consultation by a colleague. The physician should be acquainted with the fact that the attorney who engages his serv-

ices is merely acting as the patient's agent, and he should, therefore, make definite arrangements for any compensation that he may expect for such services. The physician should know that an agreement for his compensation as an expert witness contingent on his testimony, or on the result of the litigation being favorable to the promisor, is illegal.<sup>20</sup> In simpler terminology, it is illegal for a physician to agree on a contingent fee. It is preferable for the physician to collect a fee before he takes the witness stand, for that clears him of any suspicion of his being a partner to the law suit.

In general, it may be said that the aid of a physician is required at a law suit for the purpose of establishing the nature of the person's injury, the amount of handicap he sustained as a result of the accident, and the probable duration of this handicap. It is obvious that those who have treated the patient at the time of his accident and during his hospitalization are best qualified to express opinion as to the nature and extent of the injuries. The extent of the handicap should be gaged by the nature of the injury, its extent and severity, its aftereffects, and the functional limitation that it imposed on the particular individual. The permanency of the injury can be determined only by appraising the severity of the accident, the personality type of the person who sustained the injury, his occupation, his interests, and his obligations to his family and society. It must be remembered that the vast majority of patients who have sustained brain injuries sooner or later resume their former work. Nevertheless, there are many who do not, and more than a few who are permanently incapacitated. The brain is the master organ of the body. An injured brain is an organ of lessened efficiency. The anatomic alterations as a result of both the pathologic changes and reparatory processes are permanent.

When a physician is engaged as an expert, he must obtain as thorough an anamnesis as is humanly possible. Every source of information should be utilized to obtain necessary data. The anamnesis

*corpus striatum*, and spreading through the *corpus callosum* to the opposite hemisphere

A review of the State Hospital records disclosed the facts that he was admitted to that institution on September 11, 1937, and was discharged to a private institution on March 22, 1938. The history of a shut-in, seclusive personality was obtained, and a history of trauma was given to the physicians. In June, 1937, he began to experience persecutory delusions and ideas of reference. He was finally committed to the State Hospital. He was diagnosed as dementia praecox, paranoid type. A neurologic examination on October 27, 1937, by Dr Perkins, disclosed no evidence of any organic pathology of the central nervous system. On March 4, 1938, he had a convulsive seizure that lasted for ten minutes, and another one on March 5, 1938, that lasted for five minutes. Neurologic examination at that time again failed to disclose any evidence of organic neurologic nature.

*Case 4*—A N., a 39-year-old man, was admitted to the Neurosurgical Service of Dr Davidoff at the Jewish Hospital of Brooklyn on January 4, 1939, and was discharged on January 31, 1939. In 1934, he fell down an elevator shaft for a distance of seven floors, without any apparent immediate injury. However, he soon began to show personality changes, becoming quite irritable and morose. Within a year following the accident he developed convulsive movements initiated by clonic movements in the left extremities, but soon becoming generalized. The convulsions continued to the time of his admission to the hospital.

On admission he showed a considerable degree of impairment of function of the left side, and on x-ray examination there was found a calcified area in the right frontoparietal region suggesting a gliomatous tumor. At operation a brownish, soft, degenerated material was found at a depth of 3 cm from the cortex in the right middle frontal convolution, extending into the parietal region. It was partially removed. On histologic examination the mass was found to be a glioblastoma multiforme. Postoperative course was uneventful.

These 2 cases present problems in which there may be honest differences of opinion. Case 3 has had the benefit of observation and study by many competent psychiatrists and neurologists. The necropsy finding alone proved the true nature of his lesion. In Case 4 the true diagnosis was established only on histopathologic studies. What was the rela-

tionship between the alleged trauma and the development of the psychosis in Case 3? What was the relationship between the trauma and the brain tumor? If necropsy examinations had not been made, what would have been the most likely diagnosis in either of the two cases? What is the time interval of the alleged trauma and the development of the symptoms? Who can be so wise as to be definite in answering the above and other questions that these cases present? Of course, there are many problems in brain injury cases upon which physicians can and do agree, even on the witness stand. The selection of experts so certified by the American Board of Psychiatry and Neurology would materially enhance the value of expert testimony.

The fact that law suits are often tried two or three years after the accident presents many problems. The situation has changed materially in the interval, and symptoms that are present when the patient is at the hospital are different from those found by the expert who examines him two or three years later for the purpose of testifying in court. Not infrequently the hospital records do not contain an examination by a competent neuropsychiatrist. It is a fact that patients who have sustained serious brain injuries and who have disabling subjective complaints may show but few and even no abnormal neurologic signs two or three years later. The patient may have made a reasonably satisfactory adjustment to his environment, but the fact remains that the gross or microscopic alterations in the brain resulting from the injury and reparatory processes are permanent.

The relationship of an alleged trauma to the development or aggravation of mental deficiency is a subject too large to be discussed at the present moment. Nevertheless, the very same principles outlined above apply in this condition as well.

There should be mutual respect of physicians and lawyers for the responsibilities and duties of each other. This would prove a positive contributing factor to judicial verdicts.

## Summary and Conclusions

1 Brain injuries are accompanied by definite anatomic and physiologic alterations and are influenced by the severity of the injury, its location, the age of the patient, the personality of the individual, and the therapy administered

2 Adequate training and experience are indispensable prerequisites for the treatment of the patient, not only for the acute manifestations of his injury, but also for its aftereffects

3 Honest differences of opinion regarding certain aspects of brain injury patients may be expected

4. The physician must be guided by high ethical standards, not only at the bedside of the patient, but also on the witness stand

5 Appreciation and respect of each other's duties and responsibilities would contribute to a better relationship between doctors and lawyers

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## EXAMINATIONS—AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The written examination and review of case histories (Part I) for Group B candidates will be held in the various cities of the United States and Canada on Saturday January 6 1940 at 2 00 P.M. Formal notice of the place of examination will be sent each candidate several weeks in advance of the examination date. No candidate will be admitted to examination whose examination fee has not been paid at the Secretary's Office. Candidates who successfully complete the Part I examination proceed automatically to the Part II examination held in June, 1940. Receipt of Group B applications for the current examination (January 6 1940) closed October 4 1939.

Candidates for re-examination in Part I (written paper and submission of case histories) had to submit their requests by writing the Secretary's Office not later than November 15 1939.

Candidates who are required to take re-examinations must do so before the expiration of three years from the date of their original examination.

The general oral and pathologic examinations (Part II) for all candidates (Groups A and B) will be conducted by the entire Board meeting in Atlantic City New Jersey on June 8 9 10 and 11 1940 immediately prior to the annual meeting of the American Medical Association in New York City.

Application for admission to Group A, Part II examinations must be on file in the Secretary's Office not later than March 15 1940. After January 1 1942 there will be only one classification of candidates, and all will be required to take the Part I and Part II examinations.

For further information and application blanks address Dr. Paul Titus Secretary 1015 Highland Building Pittsburgh (6) Pa.

## AMERICAN LARYNGOLOGICAL RHINOLOGICAL AND OTOLOGICAL SOCIETY

The sectional meetings of the Society are scheduled as follows:

Eastern Section—Pittsburgh Pa.—January 5  
Southern Section—Columbia, S. C.—January 8-9

Middle Section—Kansas City Mo.—January 19  
Western Section—Los Angeles Cal.—January 23-27

Subject to confirmation by the Council the annual meeting in 1940 will be held in New York City on June 6 7 and 8 the annual meeting in 1941 in Los Angeles.

Dr. Hurd has the program for the 1940 annual meeting practically completed. It will include papers on many interesting and timely subjects.

C. Stewart Nash M.D. Secretary

The cases here reported were tested and retested several times, and the reactions noted were confirmed by repetition of the patch tests on different skin sites and at different times

Fig 1 shows the reactions obtained in Patient 4, who was tested with several different additional types of dyes besides the two commercial tetrabromfluoresceins and the purified tetrabromfluorescein discussed in this report

Investigations are now under way with additional commercial dyes and additional purified dyes. The various commercial dyes and their corresponding purified products—purified by different methods—have been prepared for us by the Calco Chemical Company, and the reactions to these dyes by patients with the respective hypersensitivities are now being studied. It is to be hoped that we may in this way obtain some information regarding the nature of the most harmful sensitizing impurities and the best methods for their avoidance or removal

### Summary and Conclusions

Commercial brands of tetrabromfluorescein dyes as used to give "indelibility" to lipsticks are the most frequent causes of cheilitis and dermatitis about the lips in patients with allergic eczematous hypersensitivity to lipstick. In the 8 patients studied, two commercial brands of tetrabromfluorescein dyes elicited reactions on patch tests. Tetrabromfluorescein purified by chemical methods elicited no reactions in 5 of the 8 hypersensitive patients, and reactions much milder than those to commercial dyes in 2 of the 8. This finding, together with previous patch-test results and clinical experience, suggests that not the dye itself, but rather some impurity or by-product of manufacture, may be responsible for certain allergic reactions, or that impurities may act as synergists with the dye itself in producing certain reactions in cases clinically sensitive to products containing the commercial dyes.

Should future studies prove that it is a general rule that associated impurities

contribute materially in the causation of reactions in many cases of allergic hypersensitivity due to commercial dyes, the conclusions would be apparent. Efforts would have to be made to identify and to avoid or remove the commonly responsible impurities; and the establishment of standards for purity and innocuousness of commercial dyes would have to take the minimum permissible amounts of common allergenic or synergistic impurities into consideration.

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### Discussion

Dr. Marion B. Sulzberger, *New York City*—The idea that not alone the dyes, but accompanying impurities, might be of importance in producing allergic responses first presented itself during a series of extensive studies with lipstick dyes that were recently carried out by Dr. Joseph Goodman and myself [*Arch. Dermat. & Syph.* 37: pp. 597-615 (Apr.) 1938]. In the course of our patch tests we were astonished to find patients who reacted strongly to skin tests with a certain dye or pigment and who failed entirely to react to what was ostensibly simply another factory lot of the identical dye or pigment.

Our present results indicate that as yet unknown impurities play a very distinct part in producing the allergic reactions to tetrabrom fluorescein dyes. I believe that the possible practical significance of our finding is apparent. Our present study shows that even in this form of allergy an allergy that is directed toward simple chemical compounds, the minute amounts of unknown accompanying impurities play a very significant role in the production of the allergic responses. If this should prove to be a general rule, we may have to revise a great many of our practical procedures in the management of cases of eczematous dermatitis, in the elimination of allergens, in the endeavors to produce the least allergenic compounds, and in the fixing of regulations and standards regarding chemicals that are to come in contact with the human skin as ingredients of cosmetics wearing apparel and so forth.

Moreover the theoretic significance of our finding, should it be confirmed and should it prove to have general application would be of the very greatest immunologic importance. If for example, one should find that the effect of the impurities contained in the dyes was a synergistic one i. e. if it should be shown that neither dye alone nor impurities alone, but only the combined action of both produced the eczematous sensitivity or elicited the eczematous reaction then this would demonstrate a phenomenon in eczematous allergy closely comparable with phenomena that now have been so generally recognized in other forms of allergic changes.

As you all know the synergistic effects of the accompanying polysaccharides and small molecu-

lar constituents have been shown to be of great significance in the sensitivity to natural antigens so that action formerly attributed to proteins can now in many instances be seen to be due to accompanying impurities, or to smaller molecules attached to or forming part of the protein complex. Moreover the synergistic effects of toxins and organ-substances (Birky) of virus and cerebral lipoids (Rivers) of different fractions such as the phosphatides and proteins of the tubercle bacillus (Sabm and Joyner) etc are all examples of the role of synergism in various forms of immunologic alteration. There are perhaps other examples of synergism even in the case of *eczematous allergy*. For example, one occasionally encounters cases in which a combined exposure consisting of two or more allergens produces dermatitis while each one of the separate ingredients, when applied alone is innocuous. A common instance of possible synergism in eczematous allergy is that of hydrarg ammoniati and salicylic acid. On tests on several thousand patients I have found over 50 per cent to react to an ointment containing 5 per cent each of the mercurial and salicylic acid but the great majority of these individuals failed to react to either 10 per cent hydrarg ammoniati or 10 per cent salicylic acid when applied separately. The mechanism of this synergism of a mercurial and salicylic acid awaits elucidation.

For the reasons just expressed I believe that the study just presented promises to open many new avenues for further experimentation and may prove of fundamental practical and theoretical significance.

#### REVISED CARDIAC CLINIC DIRECTORY NOW READY FOR DISTRIBUTION

A revised, up-to-the minute directory of New York City's affiliated cardiac clinics is just off the press and ready for general distribution, it is announced by the New York Tuberculosis and Health Association. The directory compiled by the Heart Committee of the Association, covers the entire city lists all cardiac clinics affiliated with the New York Heart Association, notes the clinic chiefs and social workers connected with each hospital, and quotes the hours the

various clinics are at the public's disposal. For the first time it carries a list of employment services and rehabilitation bureaus available to those suffering from heart disease.

The directory is for the use of social workers, public health nurses and teachers, and copies may be obtained free of charge at the offices of the New York Tuberculosis and Health Association, 386 Fourth Avenue, New York. New York.

#### A PLACE IN THE SUN

The moment that we get people to living properly we shall see an enormous reduction in disease. One of the most extraordinary things is that the good Lord gives us sunshine and chlorophyll and other things that science talks about and yet when the sun appears man hides himself

and when it disappears he comes out in the open again. God puts His people in the sun and then society comes along and shoves His people back into dungeons and behind bars and in dark rooms—and that is what we call civilization—GATA F British J Tuberc.



# COMMUNICABLE DISEASES AND THE SCHOOL

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*(Assistant Commissioner for Preventable Diseases, New York State Department of Health)*

THE acute communicable diseases have always been a matter of considerable concern to the school authorities because of the relatively high incidence of these diseases in children of school age. Over 50 per cent of the reported cases of four of the common communicable diseases—scarlet fever, whooping cough, measles, and diphtheria—occur between the ages of five and fourteen. With the tendency toward concentration of educational facilities into larger units, it has been assumed that there has been an increase in the opportunity for exposure to infection.

Fortunately, effective control measures have been developed for one of these diseases which has more than offset the greater possibilities of exposure, and there has been a consistent decrease in the incidence and mortality from diphtheria in the school-age group as well as in younger children.

In New York State there has been in some instances confusion as to the responsibility for communicable disease control activities in the school, and widely differing practice has prevailed in different parts of the state. In general, it has been assumed that communicable disease control is the responsibility of the health officer, but school authorities have in some instances imposed additional or supplementary regulations.

There can be little doubt that uniformity of practice is desirable in communicable disease control activities, provided that the established policies are in accordance with known facts and generally accepted procedures. It is the responsibility of the official health agency to establish such standards on the basis of the broadest possible experience. Further progress in the control of communicable diseases, or even the maintenance of advances already made, will depend upon

the vigorous application of known methods of control and the development of new methods to fit changed conditions.

In the rapidly developing field of preventive medicine it is not surprising that there is difficulty in maintaining complete uniformity in communicable disease practice. It is inevitable that there will be differences of opinion as to the value of existing methods of control, and new technics not adequately tested as to efficacy may appear desirable merely because of their newness. Those of us engaged in communicable disease control activities, either as health officers or as school physicians, should make an effort to test the value of existing procedures and not too hastily accept new and untried methods of procedure. The admonition to "be not the first by whom the new is tried nor yet the last to lay the old aside" is especially applicable in the field of communicable disease control.

Entirely ineffective methods of fumigation were used until quite recently, and in fact are still occasionally used as terminal disinfection following communicable diseases. Unnecessarily long periods of isolation and quarantine are occasionally insisted upon in spite of evidence that such isolation and quarantine is unnecessary. Closing of schools when cases of communicable disease occur has been frequently resorted to in spite of evidence that this measure may result in an increase rather than in a decrease in the spread of infection.

Changing conditions as a result of natural factors or as a result of preventive activities may also make necessary changes in procedures originally sound. One example of especial interest to school physicians may here be cited.

This particular example relates to the control of diphtheria. It has been quite

generally assumed that in a large proportion of individuals artificially immunized against diphtheria, permanent protection was provided, but recent experience indicates that the permanency of this immunity may be dependent upon occasional stimulation by contact with a case of diphtheria or a carrier of the organisms. There is considerable evidence that with the marked reduction in diphtheria there is a parallel reduction in the carriers of the virulent organism which may eventually reach the point where there is insufficient stimulus resulting from subclinical contact with the organism to maintain immunity. If this is definitely established, control measures may have to be modified in some way to provide the necessary additional stimulus.

There must be the closest cooperation between practicing physicians, the school authorities, and the health authorities in studies of the efficacy of measures for the control of communicable diseases and in the development of new procedures or modifications of existing procedures which will result in more effective control. Reciprocal reporting of cases of communicable diseases by the health officer and the school medical officer is necessary if adequate school and community protection is to be provided. Teachers, school nurses, and the school physician are in an especially advantageous position to aid in the control of certain of the communicable diseases in preschool as well as in school children.

For example, prompt recognition and reporting of the occurrence of measles in a school child may enable the health authorities in cooperation with the practicing physician to provide protection for an infant exposed in the home. A suspected case of scarlet fever in a school child, if reported to the health officer by the school authorities, may, if the case is a resident on a dairy farm, make possible prompt protection of the community from a possibly contaminated milk supply.

The teacher and the school nurse may be of great assistance in the early detection of communicable diseases, but this

method of case finding has frequently been sadly neglected. It is rarely possible to have daily inspection of all school children by a medical officer, but an effective screening process can be developed. It is not expected that the teacher or even the school nurse can be relied upon positively to identify communicable diseases but they can develop a fine sense of suspicion. Any child showing evidence of acute illness or suggestive symptoms or signs at the daily inspection by the teacher should be referred to the school nurse, if the school is so fortunate as to have a nurse. She in turn will refer those children whom she considers possible cases of communicable disease to the school medical officer or family physician, preventing in the meantime exposure of other children in the school. A high degree of teamwork in this phase of the school health program is greatly needed and will result in earlier recognition of cases of communicable disease and a consequent reduction in the amount of exposure of the school group. Once a case has been discovered, reported, and removed from the school, full responsibility for further preventive measures may well be placed upon the health officer and the public health nurse.

No discussion of a school health program is complete without a reference to immunization procedures, but in our present state of knowledge the part of the school in an immunization program has become a relatively minor one. Of the communicable diseases for which immunizing agents of proved value are available, smallpox is the only one in which the school immunization program has in recent years been of major importance. In the larger cities, according to the provisions of the Public Health Law, facilities for the vaccination of children before admission to school must be provided unless evidence of previous vaccination is presented. The responsibility for the determination of those children for whom vaccinations must be provided by the community is that of the school authorities. The actual provision of facilities for vaccination is usually the re-

sponsibility of the health authorities. This dual responsibility makes close cooperation between these two governmental agencies a necessity.

In cities of less than 50,000 population or in rural areas, smallpox vaccination of children is required for school entrance only if the disease exists in the community. Many school physicians in the state working in the smaller cities or rural schools in cooperation with the health officer and practicing physician have been able to maintain a well immunized school population in spite of the absence of compulsion. As many of you will agree, I am sure, this is frequently a difficult task. After a period in which smallpox has not occurred in a community, public interest is apt to lag and an unusual stimulus must be given in order to maintain a safe proportion of vaccinated persons. A good example of the result of lack of public interest in the vaccination program occurred in New York State about three years ago. After a period of several years in which no cases of smallpox had occurred in the state, there developed in many communities a feeling of security from this disease and smallpox vaccination was sadly neglected. In one community in which the numbers of children vaccinated against smallpox had decreased markedly, a school child was exposed to a case of smallpox which was not recognized as such at the time. This child developed a mild and unrecognized attack of smallpox and remained in school, exposing a large group of unvaccinated children. A widespread epidemic of smallpox was the inevitable result.

When immunization against diphtheria was first introduced, the school group was most readily available and mass immunization in the schools was attempted in many places. The ineffectiveness of such a program on the general morbidity and mortality from diphtheria was most discouraging, but easily explained in that immunization of the school-age group and neglect of the younger children failed to protect that group of individuals in which both mor-

bidity and mortality were highest. In recent years emphasis has been placed upon the immunization of the younger group with more encouraging results.

Unfortunately, effective immunizing agents are not available for the prevention of several of the more prevalent communicable diseases, notably measles and scarlet fever. Measles frequently occurs in epidemic proportions in the schools because of almost universal susceptibility to this disease and because of the difficulties of diagnosis in the early, highly communicable stage. This disease is, however, relatively benign in children of school age. Activities for the control of measles must be directed primarily toward the protection of infants or young children in the homes to which school-age children may bring the infection. Many older children suffering from measles are not sufficiently ill to impress the parents with the necessity of medical advice. Knowing that if the child were sent to school, he would not be admitted, the parents keep him at home and if no follow-up of absentees is made from the school, the disease may remain unreported and possibly unrecognized. This mild case in a school child may be the source of the fatal infection of an infant in the home.

Reports from the school physician or school nurse to the health officer of absenteeism by cause or suspected cause can be of material aid to the health officer in carrying out an effective program in the control of communicable diseases. These reports may also be of great assistance to the health officer in the recognition of the unusual prevalence of other communicable diseases. A recent outbreak of gastroenteritis first came to the attention of the health officer through a report from the school nurse of a number of children absent from school because of diarrhea. Individual health records in the school provide information of value to the school authorities as well as to the health authorities and are necessary for the development of a well-rounded program of health supervision in the school.

Scarlet fever frequently presents a problem to the school health authorities that seems almost impossible of solution. The most rigid enforcement of isolation and quarantine of recognized cases of scarlet fever usually fails to prevent the spread of this disease. Careful search for the source of infection of cases of scarlet fever rarely elicits a known contact with a previous case in more than 20 per cent of those suffering from the disease. Investigation of previous illness in households in which cases of scarlet fever occur, frequently brings to light a preceding infection diagnosed as tonsillitis, laryngitis, or other related infection.

The evidence is more than suggestive that these cases may serve as a source of infection of clinically typical cases of scarlet fever. The frequency of this type of infection makes control of the disease by isolation of recognized cases far from perfect. During the season of increased prevalence of scarlet fever it seems certainly advisable to require isolation or at least exclusion from school of cases of related infections or so-called nonspecific sore throat.

Poliomyelitis also presents a most difficult problem to both the health officer and the school physician. Hopes of a means of prevention have repeatedly been raised only to end in disappointment. A few years ago methods of immunization by the injection of killed or attenuated virus were proposed, and in some places widely used, but careful study failed to demonstrate any evidence of protection among groups of children so treated. On the contrary, there was evidence of definite danger of producing the disease directly as the result of the inoculation.

The more recent demonstration that experimental animals can be temporarily protected against intranasal infection with the virus of poliomyelitis, by the application of various chemicals to the mucous membrane of the olfactory area by means of sprays raised the hope that chemical prophylaxis might offer a means of control of this disease. Unfortunately

the application of this principle to human subjects has met with unexpected difficulties. The successful application of the chemical to the area of the nasopharynx, believed to be the portal of entry of the virus, has been extremely difficult and at the present time even in the hands of the most skilled workers is impossible in a considerable proportion of children. Careful studies in well-controlled groups in which this method has been used by well trained otolaryngologists show no evidence of protection in the treated groups.

The use of the various nasal sprays for protection against poliomyelitis must be considered as yet very much in the experimental stage and should not be undertaken except by especially skilled workers under controlled conditions which may be expected to provide statistically significant evidence either of the value of the method or possibly the harmful effects of this treatment as given.

Since in our present state of knowledge there is no specific preventive measure that can be generally employed, there is frequently considerable public hysteria in communities in which cases of poliomyelitis occur. Pressure may be brought to bear upon the school authorities, urging closing of the schools during periods when cases of this disease are known to exist. There is no evidence that this measure will limit the spread of the disease. In fact, there is more justification for the closing of schools because of the occurrence of the common cold as a means for preventing pneumonia, which from the standpoint of morbidity and mortality even in the school age group is of far greater public health significance than poliomyelitis.

To summarize Communicable disease control in the schools must be a cooperative activity of the practicing physician, the school medical staff, and the health officer. Protection of the public health can be provided only if each utilizes to the fullest extent adequately tested methods of control and maintains a receptive but critical attitude toward proposed activities in this field.

# OBSTETRIC COMPLICATIONS IN RELATION TO THE GENERAL PRACTITIONER

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IT IS manifestly impossible to discuss in a short paper all of the complications of labor that may be met by the obstetrician, so I have ventured to select four conditions that have troubled me greatly during the course of the years and that I feel merit a rather detailed discussion.

The toxemia of late pregnancy makes itself manifest in a variety of forms, some of them so obvious that prompt and energetic treatment is indicated from the start, while in other cases the early symptoms of the condition are exceedingly mild and are prone to be regarded as unimportant until a sudden exacerbation makes treatment imperative.

In a survey of maternal deaths carried on by the Committee on Maternal Welfare of the Philadelphia County Medical Society several years ago, there were certain facts concerning toxemia that were frequently repeated in the case histories. It was noted that in a great majority of toxic women there had been a slight and relatively insignificant rise in blood pressure for several weeks before active symptoms supervened. Women whose systolic pressure had been 110 and 120 mm during the early months of pregnancy developed a gradual or sudden hypertension of not more than 10 to 20 points. In most instances this slight increase had been ignored by the physician or at most had been treated by a reduction in diet. It was noticed that in this group of patients there developed a sudden marked hypertension, usually in the last two months of pregnancy, with edema and all the evidences of severe toxemia. In another group of women the initial symptom was a rather marked weight gain with or without edema which, if

untreated, developed in many instances into a severe toxemia. Urinary changes were late in appearing in many of these women. Such findings have caused me to regard even a slight increase in blood pressure, with or without excessive weight gain, as definite evidence of potential eclampsia, and as a result, during the last four years we have insisted at the Kensington Hospital for Women, as well as the Philadelphia General Hospital, on the immediate admission of patients whose blood pressure reaches 140 mm systolic, in order that they may be treated by bed rest, diet reduction, and possibly saline purgation. If the patient is to be treated in the home, she should be confined to bed and closely observed to determine the degree and the rate of blood pressure reduction. The results have been most gratifying in that active treatment for one week or less usually brings about a restoration of the normal. After being discharged from active treatment, these patients are closely observed during the remainder of their pregnancy and warned to report immediately any subjective symptoms, such as headache, nausea, or the sudden development of edema.

In the minority of instances treatment does not bring about improvement but, rather, the hypertension, edema, etc., increases, and in agreement with the work of Clifford and others we have found that it is inadvisable to attempt to carry a definitely toxic patient to term, because not only is there the danger of a sudden fulminating toxemia, but the infants of these women are themselves apt to be toxic, and at term are usually less fitted to cope with extrauterine existence than if they are born as premature babies.

*Read by invitation at the Annual Meeting of the Medical Society of the State of New York, Syracuse, April 25, 1939*

who have not yet become toxic. We therefore feel that the induction of labor after seven months' gestation is advisable in definitely toxic women.

Eclampsia itself, that devastating end result of pre-eclamptic toxemia, may almost be classed with the disappearing diseases. While it is still prevalent in certain sections of the country, notably among the colored women of the south, it is steadily and rapidly decreasing in all areas where prenatal care is available and employed by the women of the community. For example, the Kensington Hospital for Women is a small institution devoted exclusively to gynecology and obstetrics with an annual service of about 1,000 deliveries. In this hospital there has not been a single case of eclampsia seen in the last two years, although patients are admitted from any outside source as well as those studied in the prenatal clinic, and many of the women belong to the underprivileged class, there being a large proportion of free beds. The same conditions are found throughout the hospitals of Philadelphia and, indeed, the teaching clinics in that city complain because there are too few cases of convulsive toxemia admitted to furnish adequate instruction to the students.

There is not time in this brief summary to discuss the detailed treatment of eclampsia and, indeed, the matter has been the subject of so much excellent work that the profession is almost united in accepting the conservative, medical management of this lesion rather than radical surgical intervention.

The second complication to labor that has greatly disturbed me is that of inertia uteri, so often associated with spontaneous rupture of the membranes without development of active labor. Among these women exhaustion from prolonged or ineffectual uterine contractions often occurs. In addition to this, the amniotic fluid having been drained away, the uterus sometimes molds itself to the body of the fetus with the formation of one or several retraction rings and great danger of fetal asphyxia from pressure upon the cord. Infection via the open amniotic

sac is a common danger. In hospital practice this symptom complex seems to be rather on the increase, and its management is at best unsatisfactory.

The stimulation of uterine contractions by repeated very small injections of pituitrin (two minims every twenty minutes for six or eight doses) may be tried, but is often without avail. Expectant treatment has given rise also to many feeble or stillborn infants with difficult operative delivery, and our present plan is the use of dilating bags introduced into the lower uterine segment under rigid aseptic precaution in an attempt to produce cervical dilatation and spontaneous uterine contractions. This plan has given the best results in my hands but an analysis of the records of patients so treated shows a discouraging morbidity rate.

One is inclined to relieve the nagging pain by analgesias, morphine, or barbiturates as the case may be, labor usually ceasing for some hours, after which the pains recur and one is then tempted to stimulate contractions by the use of pituitrin. This alternation of stopping and starting uterine contractions is, in my belief, bad practice and should be avoided whenever possible.

The third complication of labor that at once occurs to any obstetrician is the matter of postpartum hemorrhage. Adequate prophylaxis undoubtedly reduces the frequency of this accident. Patients who enter labor with an adequate blood supply, who have not undergone excessive weight gain and who are not toxic present a considerably lower incidence of hemorrhage than those not so fortunate.

The unhappy modern trend toward excessive analgesia and anesthesia has a pronounced influence on excessive bleeding, which is all too apt to occur among women who have much sedation during the earlier stages of labor, followed by prolonged, deep anesthesia, notably that induced by the administration of nitrous oxide at the end of the second stage. An understanding of the physiology of the third stage of labor and the maintenance of physiologic principles during

that period is a most important factor in the prophylaxis against postpartum hemorrhage and one that is all too often neglected. Authorities all agree that immediately after the birth of the baby the uterus becomes converted into a fairly hard mass of contracted muscle. There are normally rhythmic periods of relaxation during which the muscular fibers rearrange themselves before another wave of contraction begins.

Presently the fundus will be felt to soften, rise definitely in the abdomen, and again become firmly contracted. This phenomenon indicates the separation of the placenta and its descent into the lower uterine segment. Then and then only should efforts to facilitate expulsion be attempted and these should consist of gently but firmly grasping the fundus uteri and, using this as a piston, pushing the placenta into the vagina and out through the vulva.

The kneading and compression of the uterus after the method of Credé is not to be performed unless definite evidences of adhesion of the placenta become apparent.

The common practice of having attendants firmly grasp the uterus immediately upon the expulsion of the infant and subjecting it to strong kneading and massage is a faulty one, since by this artificial stimulation the normal rhythm of placental separation is interfered with, nor are the uterine muscle fibers given any opportunity to rearrange themselves into their normal relationship.

It has been stated that the physiologic processes of the third stage of labor are frequently inhibited by the use of analgesics and especially anesthetics. Under such circumstances stimulation is required to combat the anesthetic effects and nothing has been described that improves upon the generally accepted practice of exhibiting hypodermically 1 cc of obstetric pituitary gland extract as soon as the baby is born. At the same time, 1 cc of aseptic fluid extract of ergot is administered intramuscularly to secure a more lasting oxytocic effect. Theoretically, the use of ergot before the expulsion

of the placenta is wrong, because such a general contraction of the uterus may result as will imprison the separated placenta within the closed cervix. This objection has never impressed the writer because with the routine use of ergot as described in many thousands of obstetric cases, cervical obstruction to the delivery of the placenta is so rarely observed as to be negligible. When the above prophylactic measures are consistently carried out, the incidence of severe postpartum hemorrhage will be small, but the statement is emphasized that when blood loss exceeding 500 cc does occur the condition must be regarded as a dangerous complication and treatment to be effected must be prompt and vigorous.

The survey of maternal deaths in Philadelphia before alluded to brought out some interesting points with regard to postpartum hemorrhage, and the data concerning postpartum hemorrhage in this survey have recently been published by Beecham, who found that, in most of the fatal instances, the interval between the occurrence of the hemorrhage and the death of the patient was between five and six hours, and that active treatment in most cases was not inaugurated until shortly before death, hours after the bleeding first made itself manifest. Observations of patients suffering from this complication have led me to reach the conclusion that the patient in whom the bleeding is violent at the onset most generally recovers, whereas the woman in whom the bleeding is moderate—a constant trickle of blood from the vagina—is apt to go on, with various mild measures to stop hemorrhage being employed, until suddenly the anemia becomes so acute that symptoms of shock supervene, the pulse suddenly rises, the blood pressure falls, and death occurs before active treatment has been instituted.

My own belief and practice is that postpartum hemorrhage of any degree is a serious complication of labor and that definite treatment should be instituted quickly. The treatment may be summed up in a phrase "Haste, packing, and transfusion." The necessity of haste is

shown by the fact stated above that so many of these women bleed to death before efforts to control the hemorrhage are seriously considered. Of all plans for controlling bleeding after labor, I think firm packing of the entire uterus is the best single measure available to the obstetrician.

The objection has been urged that packing leads to infection and that in certain instances it does not control the hemorrhage. The first of these objections is unimportant because, under modern aseptic technic, it is perfectly feasible to pack the uterus even in the home, with sterile gauze contained in large glass tubes or jars, without any appreciable danger of inserting infective material into the uterine cavity. Indeed, I feel that the presence in the uterus of blood clots that are extruded piecemeal sometimes for days after delivery, is much more apt to provide a series of infections than the sterile packing material.

As to the second objection, that packing does not always control hemorrhage, this is admittedly true, and it is a part of all proper obstetric routine to carefully note any seepage through the packing and, in the event of this continuing bleeding, the packing should be removed, under aseptic precaution the uterine cavity cleaned out with a hot intravaginal douche, and then more packing should be introduced. It is most unusual to have a second packing fail to accomplish its purpose.

Transfusion needs but little comment. Any woman who has lost much blood should have the blood replaced by direct transfusion, if possible, or by the introduction of solution of acacia glucose or saline—indeed any appropriate blood that may be available.

In the Kensington Hospital for Women we have found much comfort from the establishment of a placental blood bank, there being always in supply many 100 cc. of placental bloods of various types. Transfusion, with the aid of such a blood bank, can be carried out within a few minutes and without the usual delay from the assembling of donors and the

typing and other preliminaries required. In addition to this measure, we utilize gentle massage of the uterus and employ Koagamin, the hemostatic agent recently developed by the Research Foundation, Kensington Hospital for Women, as adjuvant measures. It seems unnecessary to add that in every case of bleeding after delivery, careful visual inspection of the birth canal is carried out in order to eliminate laceration of the cervix or perineum as a possible source of the hemorrhage.

The fourth matter to be considered is that unconquered enemy of the obstetrician, puerperal sepsis. Supreme among the causes of maternal death, sepsis has continued to prevail, despite the improvements in asepsis and in technic, and has resisted all attempts to lessen its ravages during the past half century. Only lately has sulfanilamide been brought forth as a somewhat successful therapeutic measure in ameliorating the severity of the disease.

Notable work has been done toward classifying the etiology of puerperal sepsis, especially the contributions of Colebrook, of London and Watson of New York. These observers are agreed that infection via the respiratory passages of streptococcus-carrying attendants in the delivery room and lying in chamber constitutes a most important etiologic factor. Despite the scope and accuracy of the experimental work that has been carried out, and the logical deductions of the proponents of respiratory tract infections, the writer is not wholly convinced of the importance of this avenue of contamination.

Certainly much study is still required before this baffling problem is elucidated, one of the most promising leads being the morphologic alteration of the anaerobic streptococci ordinarily demonstrable in the birth canal, to aerobic types with their potentialities for producing septic processes.

As prophylactic measures it is a truism to state that the woman who goes into labor in good physical condition, her resistance high, and who is subjected to a



minimum of manipulation and operative invasion will be less liable to develop sepsis than her less fortunate sister

However, even this statement is subject to great modification since everyone is familiar with the patient who experiences a rapid, easy delivery, without pelvic examination or interference of any kind and who becomes a victim of puerperal fever in its most serious form

The management of sepsis is the question that concerns us at the moment and here there is but little to add to the general information on the subject. In the blood stream infections, frequent small transfusions of whole blood, abundant nourishment, sunshine, and avoidance of exertion are the cardinal factors of treatment. Here it is that sulfanilamide comes into its own. Doses of from 60 to 80 gr daily by mouth exert a profound effect in many instances, and records of brilliant cures as a result of the administration of this drug are steadily accumulating. The cyanosis and depression that so often are corollaries to its use often become alarming, but it has been shown that these ill effects are not often absolute contraindications to the continued exhibition of sulfanilamide

Work with sodium bicarbonate and nicotinic acid seems to offer some hope that these or other adjuvant drugs may counterbalance the untoward effects

of this most valuable therapeutic agent

When puerperal sepsis takes the form of a pelvic infection with or without peritonitis, it is imperative that a careful vaginal examination be made from time to time to exclude the possibility of localized abscess formation. Cornual abscess, purulent salpingitis, pelvic abscess—all are common and should be attacked by incision and drainage, either by the vaginal or the abdominal route, according to the location of the collection

The profound anemia may be combated by the hypodermic administration of iron salts or liver extracts, and on occasion the so-called immuno transfusion as developed by Crocker and his associates gives gratifying results

Taken all in all, however, puerperal sepsis is one of the gravest diseases to be met by the obstetrician, and at best the results of its treatment have much to be desired

There are so many complications of pregnancy and labor that rise to one's mind that this brief paper might be indefinitely extended, but time does not serve to discuss them all. The subjects that have been offered to your attention are all major problems, and if they have been somewhat cursorily dispatched it is because of one's inability to crowd an enormous subject matter into a small space

1814 Spruce Street

## IT CAN HAPPEN HERE

The need for more adequate protection against theft of narcotic drugs possessed by physicians, pharmacists, veterinarians, dentists, and hospitals has been pointed out by his department from time to time, says Frank J. Smith, supervisor, Bureau of Narcotic Control in *Health News* (Albany). For the past few years, the Bureau of Narcotic Control has emphasized the importance of providing better protection of such stocks. Improvement has been obtained in a large number of instances, but the general attitude is that narcotic storage is satisfactory and that added safeguards are unnecessary

Information received by the Bureau contradicts the assurance of many institutions and professional persons that their supplies of narcotics are not affected by theft. Losses have been reported by physicians, hospitals, and pharmacies. Hospitals under the jurisdiction of this depart-

ment have not been exempt from such incidents

Harry D. Anslinger, United States Commissioner of Narcotics, advises that for the country as a whole approximately 11 per cent more losses were reported in the twelve months ending June 30, 1939, than in the preceding year. It is suspected that many thefts have not been discovered or reported

As enforcement of narcotic control measures increases the difficulty of obtaining illegal supplies, the legitimate, high-quality stocks intended for medical and scientific use become more desirable to the addict and peddler. Persons who are responsible for narcotic supplies should see that safe storage is provided. Locks and keys should be furnished and used. It should be assured, not assumed, that thefts of narcotic drugs *can't* happen here

# MEASUREMENTS OF THE CIRCULATION IN CHRONIC CON- STRICTIVE PERICARDITIS BEFORE AND AFTER RESECTION OF THE PERICARDIUM

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(From the Departments of Medicine and Surgery of the New York Hospital and Cornell University Medical College New York City)

SINCE active clinical attention has been directed to chronic constrictive pericarditis, we are finding that this syndrome occurs more frequently than was formerly appreciated. White<sup>1</sup> has recently made a historical résumé of Pick's disease<sup>2</sup> and analyzed its clinical manifestations in a paper that facilitates the recognition of this syndrome. The separation of these patients from those of chronic cardiac decompensation is important since it is a cardiac lesion which lends itself to surgical treatment by pericardiectomy. This treatment has been carried out most extensively in this country by Churchill and White,<sup>3-5</sup> Beck,<sup>6-8</sup> Blalock and Burwell,<sup>9-11</sup> and us<sup>12-14</sup>. In our clinic at the New York Hospital, we have had the opportunity of seeing 12 cases of chronic constrictive pericarditis in five years, and in 10 of them one of us has resected part of the pericardium. As a result of this experience, we have been able to explore the pathologic physiology of the circulation in this syndrome. Observations have been made before operation and in certain ones after operation.

## Plan of Observations

All observations were made in the morning while the patient was in a basal metabolic state. The cardiac output was estimated by the acetylene method, three samples of gas being taken, as first recommended by Grollman<sup>15</sup> and as further elaborated by Grollman, Friedman, Clark, and Harrison.<sup>16</sup> Three samples of gas were taken during each period of re-

breathing for estimation of the arterio-venous oxygen difference. The oxygen consumption was measured with a Benedict Roth spirometer. The vital capacity was measured, and the height and weight were recorded. An electrocardiogram was taken, the arm-to-tongue circulation time recorded (Decholin<sup>17</sup>), the venous pressure estimated by the direct method (Taylor, Thomas, and Schleiter<sup>18</sup>), and the blood pressure measured. Finally, a roentgenogram of the heart was made at a distance of 2 meters. Sufficient time was allowed between each procedure for restoration of the basal metabolic state. Examination under the fluoroscope and roentgenkymograms were also made. Infrared photographs were taken to record the state of the peripheral veins. The patient assumed as nearly as possible exactly the same position for each observation.

## Results of Studies of the Circulation

Before operation, the arteriovenous oxygen difference was increased (range 71.5 to 88.6 cc.), the cardiac output per minute decreased, the stroke volume decreased (range 20 to 42 cc.), the cardiac index decreased† (range 1.35 to 1.84 l./sq. m./min.), the circulation time prolonged (range 15.4 to 29.8 sec.), and the venous pressure elevated (range 17.9 to 24.0 cm.). The average measurements made by the same technics on normal individuals are: arteriovenous oxygen difference 61.5 cc., stroke volume 59 cc., cardiac index 2.09 l./sq. m./min., circulation time 14.4

\*Drs. Norman F. Crane, Robert F. Watson, Charles H. Wheeler, John E. Deltrick, and Robert L. Bailey, Jr., assisted in the studies of the circulation.

† Cardiac index = cardiac output in liters per sq. m. of body surface per minute.

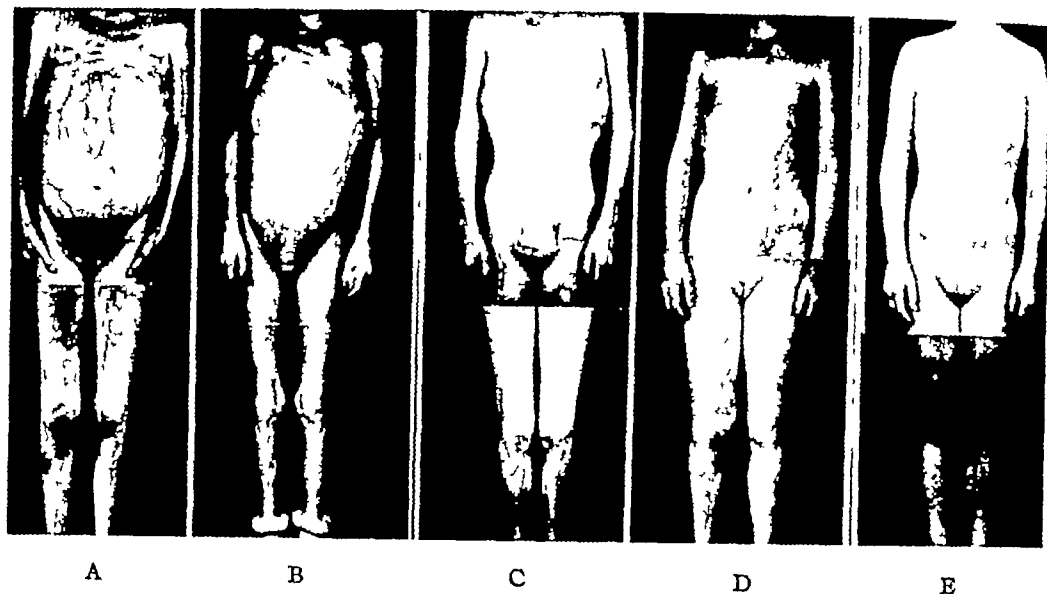


FIG 1 In this figure are presented the infrared photographs of A B Fig 1A was taken on May 20, 1936, before operation, Fig 1B on June 29, 1936, about three weeks after pericardiectomy (performed on June 5, 1936), Fig 1C on October 20, 1936, Fig 1D on April 6, 1937, and Fig 1E on November 12, 1937. Attention is directed to the progressive decrease in number and in distention of the veins, disappearance of ascites, and change in shape of the chest with loss of ascites

sec, and venous pressure 10.1 cm <sup>19</sup>

After operation, in those in whom observations were made, all the measurements approached or attained normal levels, in short, the arteriovenous oxygen difference approached or became normal (range 51.4 to 68.7 cc), the cardiac output per minute increased, the stroke volume increased (range 33 to 50 cc), the cardiac index increased (range 1.80 to 2.72 l/sq m/min), the circulation time became shorter (range 7.3 to 17.1 sec), and the venous pressure fell (range 8.3 to 16.7 cm)

Preoperative infrared photographs revealed an increase in the number, caliber, and distention of the superficial veins (Fig 1). After operation the veins became less conspicuous and many channels became invisible.

There was limitation of motion of the cardiac chambers and fixation of the heart on fluoroscopic examination. Roentgenkymograms also revealed a decrease in extent of contraction. In 5 patients calcification was observed (Fig 2). After operation the extent of contraction increased in all except one patient.

The size and shape of the cardiac silhouette was not uniform. In 4 cases it was moderately large and in 2 conspicuously small (Fig 2). In others, the heart appeared normal in size or only slightly enlarged. It is recalled that the cardiac silhouette includes the shadow of the heart, together with the thickened pericardium, and that the cardiac size may be small though the shadow is large.

From an analysis of the clinical features that our cases have exhibited, it appears that the following manifestations contribute to this syndrome: signs of congestive heart failure have been present in the absence of the usual, more common causes. Organic valvular lesions have been absent. Enlargement of the liver and ascites are usually present. Edema and pleural effusion occur. Distention of peripheral veins is a constant finding. The cardiac silhouette may be small, moderately enlarged, or approximately normal. The point of maximal impulse may not shift. A paradoxical pulse has been present in every case. The blood pressure is usually low and the pulse pressure small. Decrease or absence of motion of the several chambers of the

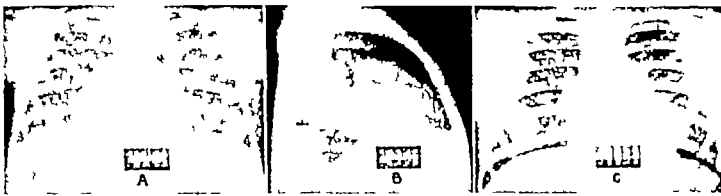


FIG 2 In this figure are shown roentgenograms of A B A and B were taken on June 2 1936 before operation and C was taken on April 6 1937 Calcification is shown in the lateral view (B) before operation. Increase in size of the heart occurred after pericardiectomy had been performed on June 5 1936

heart may be observed. Calcification may be seen in the fluoroscope and in roentgenograms, although oblique views may be necessary to demonstrate it. The electrocardiographic characteristics appear to be low amplitude of the QRS and T waves. The T wave in leads I and II may be "cove" shaped. The electrical axis may not shift or may shift only slightly with change in position of the body, too much emphasis is not to be placed on this finding, however. Slight right or slight left axis deviation may be present. Normal rhythm is usually present, although auricular fibrillation occurs in a few cases. Taking into consideration the operative procedures and the changes in the clinical state of the patient, it may be said that marked changes do not occur in the electrocardiogram after operation. Since 3 of our patients were observed during the stage of pericardial effusion, through the stage of absorption and then through the stage of constriction, this sequence is not uncommon. Patients suffering from pericardial effusion, in the absence of rheumatic valvular disease, should be kept under observation to be prepared for this development. We have been impressed just as White<sup>1</sup> was with the absence of the usual rheumatic manifestations in these cases in which constriction has occurred.

### Operative Technic

In the 10 cases in which operation was performed either anesthesia was used. The third, fourth fifth, and if necessary the second or sixth costal cartilages and

the adjacent part of the ribs were resected on the left side.<sup>14</sup> The pericardium was incised over the left ventricle and excised, after which a similar procedure was carried out over the right ventricle. The left ventricle was decompressed first, so it was ready to receive the increased amount of blood that might flow to it after decortication of the right ventricle. The pericardium was resected from as much of the anterior surface of the heart as possible. The cardiac muscle herniated through the defect in the pericardium in all cases. The skin muscle flap was closed in layers. Since the periosteum of the ribs was left in place, regeneration and reformation of the bony part of the thorax occurred. Convalescence was rapid.

In 3 of the 9 cases in which operation was performed, "cure" has been obtained, and in 5 cases the condition has been improved. It is too early to foresee the result in 1 case. These operative results, so far as they go, are an improvement over those previously reported.<sup>14</sup> One patient died nine months after operation. He had suffered from the syndrome for nine years before operation, and from his condition it was felt that operation had been undertaken too late. Improvement may begin shortly after operation and proceed rapidly, on the other hand, one of our "cured" cases improved slowly over a one-year period.

### Comment

These studies show that chronic constrictive pericarditis is associated with

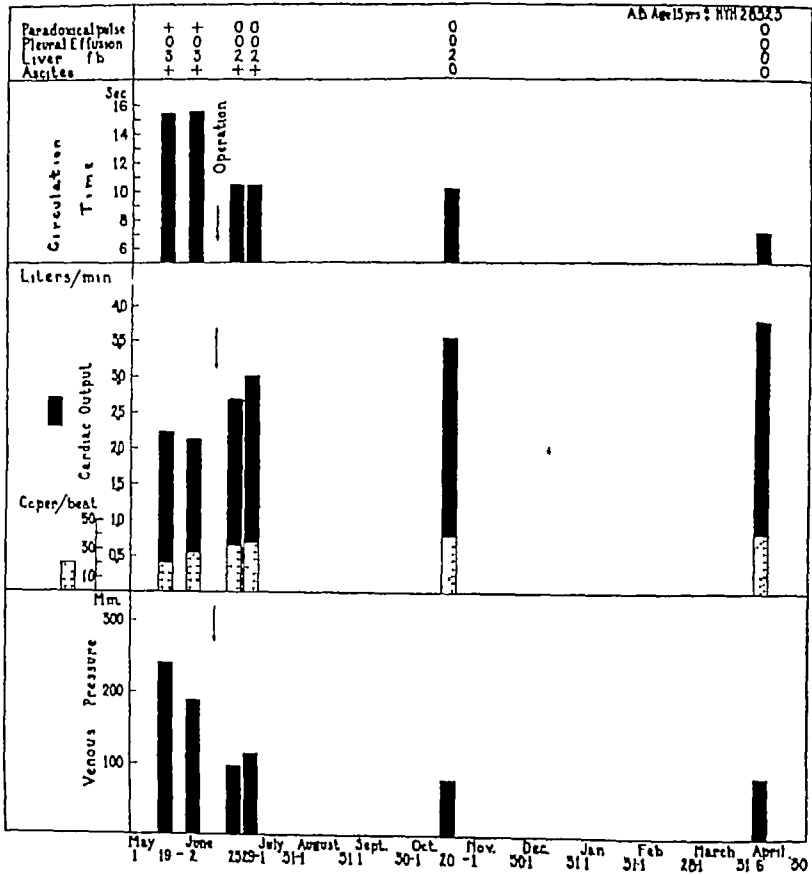


FIG 3 In this figure are plotted data relating to cardiac output per minute and per beat, circulation time and venous pressure, and the clinical signs of A B before and after pericardial resection, "f b" indicates finger breadths below the costal margin. The change in these objective measurements of the circulation to normal after operation is demonstrated also the parallel regression of the physical signs.

decrease in the cardiac output per beat and per minute, elevation of venous pressure, and prolongation of the circulation time. The alteration in the circulation appears to be the result of two defects. In the first place, there is interference with the filling of the heart. This is observed clinically on fluoroscopic examination, in that there is decreased filling of the heart in diastole, as well as when the heart is exposed at operation. In the second place, contraction is impaired, since on fluoroscopic examination and at operation decreased contractions of the heart are observed. These two defects result in decrease in the cardiac output per minute and per beat and accumulation of blood on the venous side, which is detected objectively in the rise in venous pressure. The clinical manifestations of

the disease appear to be associated with these alterations of the circulation. When clinical improvement or cure followed release of the heart by pericardial resection, parallel alterations of the circulation occurred toward or to normal levels, owing to greater filling of the heart in diastole and an increased discharge of blood in systole. The parallelism between the physical signs and the objective circulatory impairment in these cases is illustrated by the case of A B (Fig 3). Digitalis appears to be contraindicated<sup>13,20-22</sup> except in those patients who exhibit auricular fibrillation. In them it is used to keep the ventricular rate slow. Our experience with these patients leads us to recommend pericardial resection for the treatment of chronic constrictive pericarditis<sup>13,14</sup>

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## Discussion

Dr Robert L. Levy, *New York City*—As Dr Stewart has said constrictive pericarditis is not a rare condition. But it is not one of the commoner forms of cardiac disease. First adequately described by Lower in 1609 it has been the subject of renewed interest in this country during the past nine years, due largely to the work of Churchill and White in Boston and of Beck in Cleveland.

The etiology is, as a rule, obscure. Tuberculosis can occasionally be demonstrated. It may follow an acute pericarditis. But the absence of rheumatic fever from the list of causes is striking and should be stressed. The patients are usually comparatively young at the time of onset.

The two cardinal symptoms are (1) dyspnea

(2) abdominal enlargement. The two signs consistently observed are (1) enlargement of the liver—usually with massive ascites, (2) engorgement of the jugular veins. The venous pressure is elevated. Edema of the feet and legs is often present.

The heart is characteristically small but may be slightly enlarged. The blood pressure tends to be low. Heart murmurs are infrequent. A systolic murmur at the apex is sometimes heard. But the presence of mitral stenosis rules out the diagnosis of constrictive pericarditis of significant degree. The pulsations of the heart as a whole or of portions of it, as observed under the fluoroscope or recorded in the roentgenkymogram are usually diminished. The electrocardiogram shows either low voltage of QRS, or inversion of the T wave in lead I or lead II or both. Low voltage and T wave negativity may be observed in the same case. Sometimes the auricles are fibrillating.

The most important conditions from which constrictive pericarditis must be differentiated are mitral stenosis, polyserositis (Concato's disease), portal cirrhosis of the liver and occasionally nutritional edema. The differential diagnosis can usually be made.

If untreated by surgical measures the condition is chronic, though occasionally stationary for long periods. Sometimes remissions occur following suitable medical therapy and abdominal paracentesis. In certain instances, the course is rapidly progressive, ending in death within a year or two. Spontaneous cure, because of the mechanical nature of the source of cardiac embarrassment, cannot take place.

The results of surgical treatment, if successfully carried out are dramatic. Compression is released. The young but chronic invalid is restored to full health and is enabled to resume normal activity. That this end may be achieved, accumulated experience has amply shown. The manner in which beneficial changes are induced in the circulation has been clearly demonstrated by Dr Stewart's observations.

## NEW PAMPHLET ON GONORRHEA

The Bureau of Social Hygiene, Department of Health New York City announces publication of a pamphlet on *Management of Gonorrhea in the Male*, based on procedures recommended by the American Neisserian Medical Society.

The pamphlet is the latest in the series prepared for the physician in practice on the diagnosis and treatment of venereal diseases. Copies may be obtained by writing to the Bureau of Social Hygiene, Department of Health, 125 Worth Street, New York City.

## BEERS AND BIERES

All I Had Was Two Beers was the title of an address given by Dr Herman A. Helse of Milwaukee before the Wisconsin District Attorneys Association on August 5. Dr Helse is chairman of the American Medical Association's Committee to Study Problems of Motor Vehicle Accidents, which has recommended the use of chemical tests for intoxication whenever physicians are called on to diagnose the degree of alcoholic influence for city and state enforcement departments.

# TREATMENT OF TRAUMATIC WOUNDS WITH ZINC PEROXIDE

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(From the Presbyterian Hospital)

**M**AN is traveling with ever-increasing speed and has become subject to greater and more frequent trauma. The human body has developed no adequate protection to meet this trauma and the safety devices that man has developed do not adequately protect him.

Accidents resulting from high-speed automobiles, trains, and airplanes produce injuries to the human body that differ from accidents occurring in the horse and buggy days, chiefly in the increased momentum of the moving object. This may produce injury to deep tissues or be transmitted from the site of contact to distant parts of the body. The chief importance, however, of modern accidents is the greater number of people involved and, therefore, the greater variety of injuries that are incurred.

All of the tissues of the body are subjected to traumatic wounds, and, in the absence of infection, if the body as a whole survives, these wounds will heal by the production of scar tissue within a fairly definite period of time. Whenever any accidental wound is made, an incalculable number and variety of organisms are introduced into the wound and they combine with the other foreign bodies and the injured tissue to interfere with wound healing. If they multiply and gain a foothold in the tissues and produce their poisons, they may damage more tissue and thus further interfere with the local and general effort on the part of the body to repair the damage. When injured tissues are put at rest, unless there is some mechanical factor interfering with contact of the wounded surfaces, these wounds will heal with a fairly uniform regularity and speed. The progress of wound healing and the strength of the repair follows a fairly constant curve for all tissues, as shown by Harvey and Howes. The restoration of normal tissue stability is

complete at the end of about two weeks, except for such tissues as tendons or bone, which pull or hold heavy weights or loads. For these tissues also there are fairly constant periods for repair, which have been well established. These periods are, of course, prolonged by any interference of the blood supply to the part or by certain chronic debilitating diseases, such as cancer. The length of time for the repair may be shortened, on the other hand, by certain dietary regimens, for example, high protein feeding. When the requirements for tissue growth and tissue repair are better understood, it may be possible to shorten greatly this interval of time.

The *bête noir* of wound healing in traumatic cases is infection. Microorganisms call forth an exudate of fluid and cells that not only separate wound surfaces but also interfere with the metabolism of the regenerating cells.

Wounds that are made in the operating room in clean cases are always contaminated from a number of sources, but we know these sources, and our sterile technic is directed toward the minimizing of such contamination. The skin is cleaned and treated with an antiseptic, which, while it does not destroy all the organisms in the deep layer of skin, cuts the number down to a minimum. The instruments that produce the wound are rendered sterile and the wound is protected as much as possible from the bacteria that may fall into it from the air on dust particles, or from the noses and throats of the personnel of the operating room. If these well-known steps in aseptic technic are not strictly followed, a high proportion of clean operations develop wound infections ranging from 5 to 30 per cent in various reports.

When an accidental wound occurs in surroundings that have not been rendered relatively sterile, countless numbers of

organisms are introduced, organisms that were already present on the skin of the injured individual or on the instrument producing the wound or on the clothing or other foreign bodies that have been introduced into the wound. These organisms are deposited upon the surface of the injured tissue, and while some of them may be washed out by the flow of blood, many of them are retained in the crevices and interstices of the wound. The elasticity of certain tissues that have been cut across, such as muscles and blood vessels, may withdraw these organisms into the deeper parts of the wound, where they are protected. It is obvious that if these bacteria could be removed immediately after the accident, or inactivated, wound healing would go on with the same rapidity that it does in a sterile wound.

The initial treatment of such a wound in most hospitals at present is directed largely toward the mechanical removal of the gross dirt particles and other foreign bodies and of as much of the injured tissue as can be safely removed rather than toward the inactivation of the contaminating bacteria.

Up to the present time no antiseptics have been found that will selectively destroy organisms and not injure the tissues. Dakin's solution, which was so extensively used during the war in gunshot wounds, served a very useful purpose but had its limitations, the most important of which was the necessity for the very frequent introduction of the solution into the wound because of its transient action. More recently, other chlorine antiseptics have been advocated that are supposed to have a more prolonged action but this action is not continuous and many pathogenic organisms are not affected by it. The dyes and the mercury compounds, the antiseptics of the phenol group, as well as iodine, damage tissues and leave a mass of dead or dying tissue in the wound and in general do not destroy many of the more virulent organisms.

Under the present circumstances the large percentage of accidental wounds become infected. The proportion of infections rapidly increases with any delay in

the primary surgical care. If such cases are seen within the first hour and the injured tissue can be completely removed, infection may be minimal. If the initial treatment is not begun until an hour or more after the accident, the incidence of infection rapidly increases, and if the primary surgical procedure does not remove all of the injured tissue or is delayed, infection approaches 100 per cent.

The establishment of infection is also much higher in wounds that are closed than in wounds left open, and the surgeon who closes an accidental wound takes a serious responsibility upon himself, for he declares by that act that he does not think a serious infection will result. It should be done only when the initial treatment is given within the first two hours, when all injured tissue has been removed, and when the resulting deformity from an open wound would prove to be a serious handicap to the restoration of normal form and function.

The majority of accidental wounds come to the surgeon after the first two hours. Consequently, the majority of such wounds should be left open, and the burden of proof is on the man who closes them. This closure applies particularly to the skin and subcutaneous tissues. Sometimes the deeper tissue such as bone and muscle, have to be closed in order to restore function, for example, fractured bone may require plating, or a tendon or muscle require sutures. The skin and subcutaneous tissue can rarely be justifiably closed, except in such exposed regions as the face and occasionally the hands, where the deforming scar may be of considerable extent and where the blood supply is unusually good. Even here the surgeon takes a serious responsibility upon himself when he closes such a wound.

It may be said, therefore, that the great majority of such wounds should be left open. With train and automobile accidents there is often a delay of several hours or more before a patient reaches the hospital. With war wounds this delay may be prolonged. If wounds are to be left open, therefore, the opportunity is given



for the use of substances or solutions that do not injure the tissues, but inhibit the multiplication of microorganisms

Certainly the degree of contamination of these wounds varies considerably, and it is of great importance to know what organisms have entered the wound. Cultures that may be taken from one part of the wound frequently fail to reveal organisms that are in another part. There may be many organisms in the wound that are not revealed by the culture material, either because the right medium is not employed or because the organisms, for some reason or other, are not in a proper growth phase to multiply in the artificial medium presented to them.

We do know, however, from observation of wounds of this kind that have become infected, what the causative organism commonly is. We can frequently predict what organisms have contaminated the wound by knowing exactly under what circumstances the wound was produced. For example, we know that gunshot wounds are frequently contaminated by the organisms of the soil, which come from the fertilization of the soil with human and animal excreta, namely, the tetanus bacillus and the organisms of the gas gangrene group. The same is true of accidental wounds that occur in gardens and orchards. All wounds on the body surface are contaminated with the ubiquitous staphylococci. Wounds in certain parts of the body are also contaminated by the well-known organisms normally present in those regions. For example, human bites have mouth organisms directly inoculated into them, such as spirochetes, fusiform bacilli, and hemolytic and nonhemolytic streptococci. These organisms normally found near the mouth and neck are also seen in external wounds of this region. In like manner, wounds in the area of the anus and buttocks are frequently contaminated with organisms from the intestine, bacilli of the colon group and gas gangrene group, as well as numerous nonspore-forming anaerobes. Organisms that have been deposited on soiled clothing in this region may also be carried into such wounds,

and the infection is not infrequently of such a degree that death ensues.

There is no known antiseptic that will have an inhibiting action on all of these organisms without at the same time injuring tissues, but recently, fortunately, a new antiseptic has become available that not only has a continuous inhibiting effect on the worst of these organisms, but has, as well, a bactericidal action and a detoxifying action. This substance is zinc peroxide, which is now available in the proper physical state so that it may be applied to the wound with the expectation that it will liberate oxygen over a long period of time and thus inhibit the growth of most of the contaminating organisms. If the more important organisms are rendered impotent the less important organisms have much less chance of gaining a foothold.

*Zinc peroxide* is a white powder that is not a pure chemical but a mixture of end- and byproducts following the chemical and physical interaction of  $\text{ZnCl}_2$  and  $\text{Na}_2\text{O}_2$ . About 50 per cent of the final product is zinc peroxide. If it is properly prepared and properly sterilized it becomes active when water is added, and liberates oxygen slowly over a long period of time. It has been a difficult physical-chemical problem to produce a standard product that can be invariably depended upon to be active. As far as I know, the du Pont Chemical Company is the only manufacturing firm that has been able to make it satisfactorily. The products of two other firms in this country, namely, Merck and Mallinckrodt, and all foreign preparations that we have tested are almost entirely inactive. Merck and Mallinckrodt have not given up trying to make it themselves, and are prepared to distribute the du Pont material.

The powder must be sterilized at  $140^\circ\text{C}$  for four hours in a dry oven in order to render it safe for instillation into a wound and in order to activate the material. It is best to sterilize it in small quantities, for example, 5-15 Gm in large glass test tubes. After sterilization, a sample should be tested for activity. This is done by adding 50 cc of sterile distilled

water to 5 Gm of the powder in a test tube and shaking until an even emulsion is obtained. The suspension is then allowed to stand. If the powder is effective, the material will rapidly settle as a flocculent curd and leave a clear, supernatant fluid. In the course of an hour, bubbles of oxygen will appear in the sediment and gradually lift it up. Oxygen continues to form for several days and the quantity may be measured to see if it meets the standard requirements. The sterilized powder will keep effective for a month or more. Further details of this test have been reported.

The first treatment of the wound is, of necessity, complete débridement. The tissues removed must be cultured aerobically and anaerobically to determine what organisms are present in the wound. The zinc peroxide powder is then suspended in an equal amount of sterile distilled water so as to form an even mixture approximating the consistency of 40 per cent cream. An 'asepto' syringe seems to be the best instrument for getting an even mixture and is then used to flood the wound with the suspension. Care must be taken to obtain contact with every part of the wound surface. Fine meshed gauze is then soaked in the suspension and laid on the wound surfaces in a double layer. Gauze compresses, wet with water, are then laid over the fine meshed gauze and the whole dressing sealed with fine meshed gauze impregnated with vaseline or zinc oxide ointment so as to prevent evaporation.

After twenty four hours the dressing may be lifted off almost as one piece, the gauze does not become adherent to the wound if it has been kept moist. On the other hand, the zinc peroxide does adhere to the tissues. After the first dressing the wound looks gray and inert. One is struck by the complete absence of any inflammatory reaction or edema. The wound edges are soft and pliable and there is no swelling. An irrigation of the wound with saline will wash away all of the loose particles and whatever exudate there may be present. No effort should be made to remove the adherent zinc

peroxide. The wound should be dressed as before.

On the third to the fifth day, granulations will begin to appear in the wound, and thereafter they rapidly increase until the whole wound is covered and the adherent zinc peroxide loosens and is washed away. By this time the report of the culture of the débrided tissue indicates the organisms with which the surgeon has to deal. If they are pathogenic organisms that are susceptible to zinc peroxide, this treatment must be continued until repeated cultures show that they have disappeared. If the cultures show trivial organisms, secondary closure may be considered. If pathogenic organisms are present that are not susceptible to zinc peroxide, particularly hemolytic *Staphylococcus aureus* or *Bacillus coli*, the appropriate bacteriophage may be used.

With this method of treatment, serious infections with the gas gangrene group or organisms—hemolytic or nonhemolytic, microaerophilic or anaerobic streptococci or anaerobic gram negative bacilli—will be avoided in the majority of cases. For this reason, gunshot and shell wounds require the zinc peroxide treatment immediately after the primary débridement.

**Summary**—Traumatic wounds are always contaminated by organisms, and become infected unless the cases are seen early, débrided thoroughly, and treated antiseptically.

The most virulent contaminating organisms are the hemolytic streptococci, the gas gangrene clostridia, and the non-spore-forming anaerobic cocci and gram-negative bacilli, which are susceptible, both in the test tube and in the wound, to zinc peroxide.

The prophylactic use of zinc peroxide in the immediate treatment of traumatic wounds will in most cases prevent infection with these organisms.

The method of using the zinc peroxide in these cases is given in detail.

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# THE ERYTHROCYTE SEDIMENTATION TEST

## Observations on Sedimentation Rates and Leukocyte Changes in 103 Hospital Cases\*

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COINCIDENTLY with the more recent interest in hematology, there have been developed a number of laboratory tests which, if properly interpreted, have served to aid the physician in diagnosis, prognosis, and therapy. Of these, the sedimentation test has gained considerable favor, although like other laboratory procedures its value may be limited whenever one fails to correlate all of the clinical and laboratory data in a given case. It is a common experience to find those who depend almost entirely on the total leukocyte count and the degree of "left shift" as a method of determining the existence and severity of infection. Others, searching for a laboratory test that gives information with regard to the presence of tissue damage, from whatever cause, have become more enthusiastic about the sedimentation test. Since few comparative studies of these two methods have been reported, we felt it might prove of interest to study the results of the two procedures in a group of unselected hospital patients.

Since Ehrlich's introduction of the differential white blood count, many studies of the neutrophiles have been made, the object in view being an effort to determine the percentages of the various neutrophile types in various diseases. It was also hoped that such studies might eventually lead to a classification that would prove of definite clinical value. The studies of Arneith and others proved of considerable worth, but his method proved too laborious for general use. In 1929 Schilling<sup>1</sup> presented a relatively simple neutrophile classification and his methods have become a standard procedure in many laboratories. Farley,

Reisinger, and St. Clair<sup>2</sup> modified and simplified the Schilling classification, dividing the neutrophiles into two classes, the filamented and nonfilamented cells. The criterion advanced by Cook and Ponder and utilized by Farley, Reisinger, and St. Clair for dividing the filamented from the nonfilamented forms is simple and clear cut. Even though this method may not give as much information as a more detailed study of the cytoplasm in addition to the study of the nucleus, as advised by Fitz-Hugh<sup>3</sup> and Mendell and Meranze,<sup>4</sup> it has proved its worth clinically and has the added advantage of not being readily affected by minor changes in staining technics.

Fahraeus<sup>5</sup> studies on the suspension stability of the blood, first made in 1918, and particularly his extensive report in 1921,<sup>6</sup> definitely established the sedimentation test in modern medicine. Since that time many other workers have revised the technic, using various types of tubes and anticoagulants, and have reported the results of their observations in varying ways. Some have attempted corrections for anemia, while others have deemed these corrections unnecessary and at times misleading. All are agreed on certain fundamentals of technic: (1) that the tube should be strictly vertical, and (2) that a uniform technic as regards temperature, amount of blood, anticoagulant, and method of reading be employed. All of the commonly used technics, adhering to the above standards, give information of essentially the same clinical value.

From a study of 100 normal persons, Farley, Reisinger, and St. Clair concluded that 16 nonfilamented polymorphonuclear leukocytes in 100 white blood cells should be accepted as the upper limit of normal.

\* This study was aided by a grant from the Hendricks Research Fund of Syracuse University Medical College.

Pregnancy is the only physiologic state in which this limit is exceeded.<sup>7</sup> The filament-nonfilament ratio has proved of value in the prognosis of acute mastoiditis often being the first indication of complications.<sup>8</sup> The Schilling count has been found to have definite worth in estimating the severity and extent of surgical infections.<sup>9-11</sup> It is particularly applicable to appendicitis,<sup>12-14</sup> in which condition Crocker and Valentine<sup>15</sup> found the changes in the blood smear to vary almost in mathematical proportion with the amount of tissue involved in the inflammatory process. The filament-nonfilament count reflects the clinical state of chronic ulcerative colitis better than any other laboratory test.<sup>16</sup> In a study of 30 cases of chronic infectious arthritis, Steinberg<sup>17</sup> found 29 to show a definite left shift by the Schilling index. The nonfilament-filament ratio has some value in the diagnosis of typhoid malaria, and undulant fever in all of which a 1:1 ratio is exceeded.<sup>18</sup> The diagnostic and prognostic significance of the Schilling index is well reviewed by Crocker and Valentine<sup>15</sup> and Eisenberg and Newens.<sup>11</sup> Both of these groups of workers conclude that the changes in the hematologic picture not only reflect, but usually precede, changes in the clinical state.

A review of recent literature indicates that in both this country and in Europe the sedimentation test has proved its worth in tuberculosis, rheumatic fever, arthritis, and gynecologic conditions. In these states it is used primarily to estimate the degree of activity of the infection or destructive process. It has some diagnostic value in differentiating atrophic arthritis from hypertrophic arthritis and fibrositis.<sup>19</sup> A normal sedimentation rate in the presence of suspected functional disease is a link in the chain of evidence ruling out organic pathology. It is helpful in the differential diagnosis of acute appendicitis, for rarely is an accelerated sedimentation rate found in early appendicitis, unless due to complicating disease elsewhere in the body.

In malignancy, since the rate is rarely

accelerated in early cancer, its use is limited largely to follow-ups of patients after radical operations, when an accelerated sedimentation rate may be the first indication of recurrence.<sup>20</sup> Recently there have been reports of its use in differentiating myocardial infarction from angina.<sup>21-22</sup> The working concept of the sedimentation rate, important to the doctor handling patients, was voiced by Reichel<sup>23</sup> "Senkungsbeschleunigung findet sich

1 bei entzündlichen Prozessen

2 bei Nekrosen und Zellzufall.

3 bei parenteraler Eiweissresorption und zwar ist bei allen dieser Zustände der Grad der Senkungsbeschleunigung mit abhängig von der Resorptionsmöglichkeit der entzündlichen nekrotischen Produkte."

Whereas Reichel states that the degree of increased sedimentation rate is dependent upon the possibility of the products of inflammation and necrosis reaching the circulation, Fahraeus<sup>4</sup> believes that the accelerated sedimentation rate is a natural response of the patient to tissue destruction, even as changes in the white blood cells reflect the efforts of the host to repel an invader. Whether or not we wish to define the 'purpose' for these humoral and cellular changes in the blood, it is certain that coincidently with tissue destruction, from whatever cause, changes in the sedimentation rate and the leukocytic picture usually occur. It is possible, therefore, that studies of these two factors may be of more than passing interest and may yield much practical clinical information. Comparative studies of the sedimentation test and the white blood cell picture have been reported in pregnancy, arthritis, rheumatic fever, acute infections, and chronic ulcerative colitis. In pregnancy, Griffin<sup>7</sup> found both a gradual rise in sedimentation rate and a slight but definite left shift in the polymorphonuclear leukocytes. Westergren<sup>24</sup> found a slight correlation between total leukocyte count and sedimentation test, "although there are numerous and important exceptions." In tuberculosis,<sup>24</sup> chronic ulcerative colitis,<sup>16</sup> and

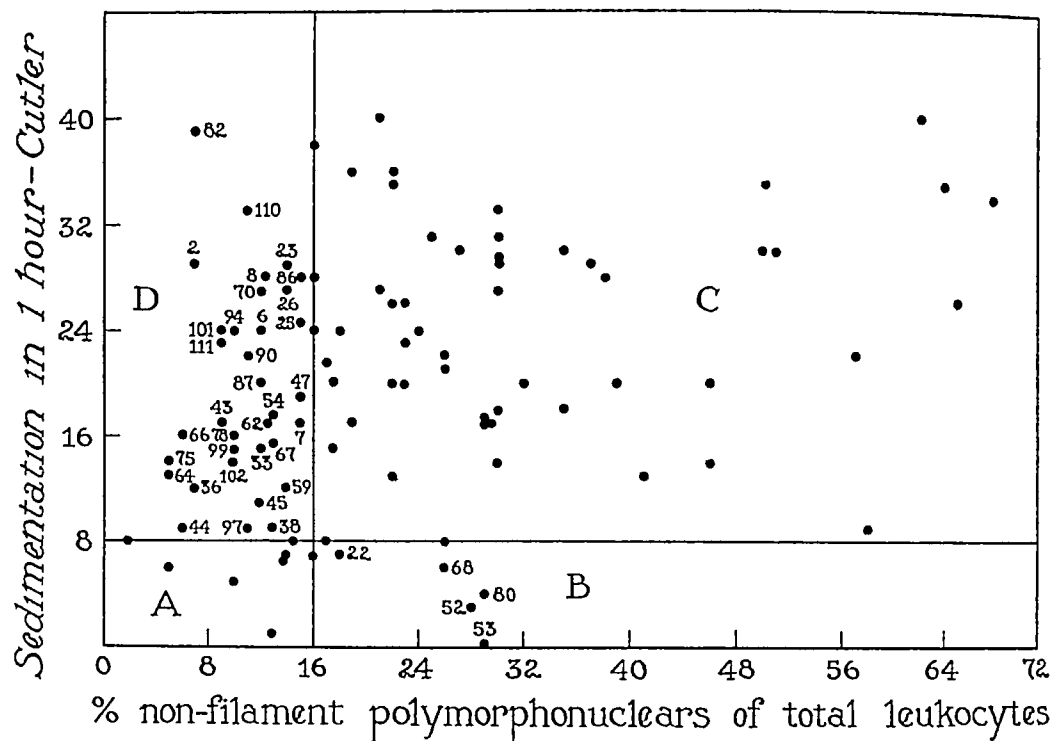


CHART 1 Represents the relation of the percentage of nonfilament polymorphonuclears of total leukocytes to the sedimentation rate in one hour—Cutler—all cases

atrophic arthritis,<sup>17</sup> studies of both the sedimentation test and of the leukocytes have been made. In general, changes in the nuclear structure of the polymorphonuclears have paralleled changes in the sedimentation rate, but the filament-nonfilament ratio, or Schilling index, appears to be slightly more accurate than the sedimentation test in these conditions. These two procedures, along with others, have been checked in rheumatic fever by Clifton<sup>25</sup> and Ernstene<sup>26</sup> and both are agreed that the sedimentation test is more reliable except in cases of decompensated heart in which, as shown by Wood,<sup>21</sup> the sedimentation rate may be very slow. In gynecologic cases, Baer and Reis<sup>27</sup> found the sedimentation time (Linzenmeier) a more sensitive and delicate prognostic index than the leukocyte count or temperature curve, while Yates, Davidow, Putnam, and Ellman<sup>28</sup> found the sedimentation test most valuable in the estimation of the extent of pelvic inflammatory disease. In a study of 27 indices of surgical infection, Harkins<sup>9</sup> found the Schilling count most valuable.

### Authors' Observations

We are presenting our observations on the sedimentation test and the nonfilament count in a series of 103 hospital patients. A comparison is also made of the sedimentation test with the total leukocyte count and of the sedimentation test with the differential white blood count. In each case, the hematocrit value, the hemoglobin content, and the red cell count, in addition to other specific tests as required, were determined. These patients were those for whom hematologic consultation was sought, and are briefly classified thus: acute and chronic infections, including pneumonia, cellulitis, ulcerative colitis, amebic dysentery, rheumatic fever, chronic cholecystitis, catarrhal jaundice, syphilis, undulant fever, chronic appendicitis—a total of 40 cases, malignancies, 12 cases, leukemias, 5 cases, benign tumors, 2 cases, atrophic arthritis, 2 cases, cirrhosis of the liver, 3 cases, arteriosclerotic heart disease, 6 cases, nephritis, 3 cases, diseases of the thyroid, 6 cases, Hodgkin's disease, 2 cases, bleeding without

TABLE 1.—CASES WITH INCREASED SEDIMENTATION RATE AND NORMAL FILAMENT-NONFILAMENT COUNT

Case No	Diagnosis	Filament	Nonfilament	Sed 1 hour	Hematocrit
2	Bronchopneumonia—recovery	50	7	29	34
6	Fibroids—tubo-ovarian abscess	54	12	24	40
7	Bronchopneumonia—pericarditis	61		17	80
8	Yeast infection—lung	34	12 5	28	37
23	Ca of stomach—metastasis to liver	59	14	29	23
25	Ca of pancreas—metastasis to liver	52	15	24 5	40
26	Carcinoma—pathologic fracture	49	14	37	39
33	Atrophic arthritis	38	12	16	36
36	Arteriosclerosis—decompensated heart	54	7	12	40
38	Rheumatic carditis—(mild)	41 5	13	9	46
43	Chronic cholecystitis	58	9	17	46
44	Chronic cholecystitis	38	6	9	44
45	Chronic cholecystitis	20	12	11	43
47	Asthma (bronchial)	41	15	19	43
51	Lead poisoning	56	13	17 5	35
59	Undulant fever	20	14	12	37
62	Menorrhagia—functional	42 5	12 5	17	35
64	Hyperthyroidism	30	5	13	39
66	Hyperthyroidism	18	9	15	39
67	Thyrotoxic?	39	13	15	45
70	Gonococcal arthritis	30	12	27	45
75	Perniciou anemia	33	5	14	35
78	Perniciou anemia	29	10	16	38
82	Perniciou anemia	79	7	39	12
86	Metastatic carcinoma	63	15	28	40
87	Arteriosclerotic heart disease	64	12	20	42
94	Perniciou anemia & bronchopneumonia	48	10	24	29
97	Froelich's syndrome	44	11	9	40
99	Carcinoma of stomach	48	10	15	22
101	Undiagnosed	8	9	24	28
103	Hyperthyroidism	34	10	14	40
110	Cirrhosis liver—ascites	45 5	11	33	25
111	Lactic acidosis	55	9	23	20 5

gross infection, 6 cases, pernicious anemia (uncomplicated) 3 cases, polycythemia 2 cases, agranulocytosis, 1 case and miscellaneous, 10 cases

Hematocrit values were determined in the Sanford Magath tube, using 5 cc of blood and 1 cc of 1.4 per cent sodium oxalate,<sup>29</sup> centrifuging at 3,000 revolutions per minute for thirty minutes. Hemoglobin was determined in the Haden-Hauser hemoglobinometer,<sup>30</sup> clinical model 1935

Red cell counts and white cell counts were determined in certified pipets and counting chambers, using 2 pipets for each determination

Differential counts were made from smears on slides stained with Wright's stain, enumerating the percentage of the filamented polymorphonuclears, nonfilamented polymorphonuclears, lymphocytes, monocytes, eosinophils, and basophils, counting 100-300 cells in each case.

Sedimentation tests were made in the 1 cc. Cutler tube,<sup>31</sup> using 9 parts of blood to 1 part 3.8 per cent sodium citrate, readings being made at fifteen minutes and one hour. The tests were done at room temperature, the tubes kept vertically, and all tests completed within four hours after withdrawing the blood

## Results

The relation of the sedimentation rate and the nonfilament count is graphically presented in Chart 1. If we accept 16 nonfilamented cells as the upper limit of normal, and 8 mm sedimentation in one hour as a maximum in health, then the graph is easily divided into four quadrants A, B, C, D. In quadrant A, the values for both tests are within normal limits, in quadrant C, both are increased.

These two groups, constituting 58 readings, represent those instances in which results of the two procedures agree. In quadrant D, those patients showing a normal nonfilament count and an increased sedimentation rate are presented. This group of 33 cases is outlined in some detail in Table 1. It can be seen that in all types of cases represented in this group, an accelerated sedimentation rate has usually been found by other workers, with the possible exception of the thyroid dysfunctions. In these 4 cases the average rate is 14.5 mm with normal hematocrit reading. Each of these patients also had a relative lymphocytosis. The patients with anemia are of interest. One case of lead poisoning had a hematocrit of 35 and a sedimentation rate of 18 mm,

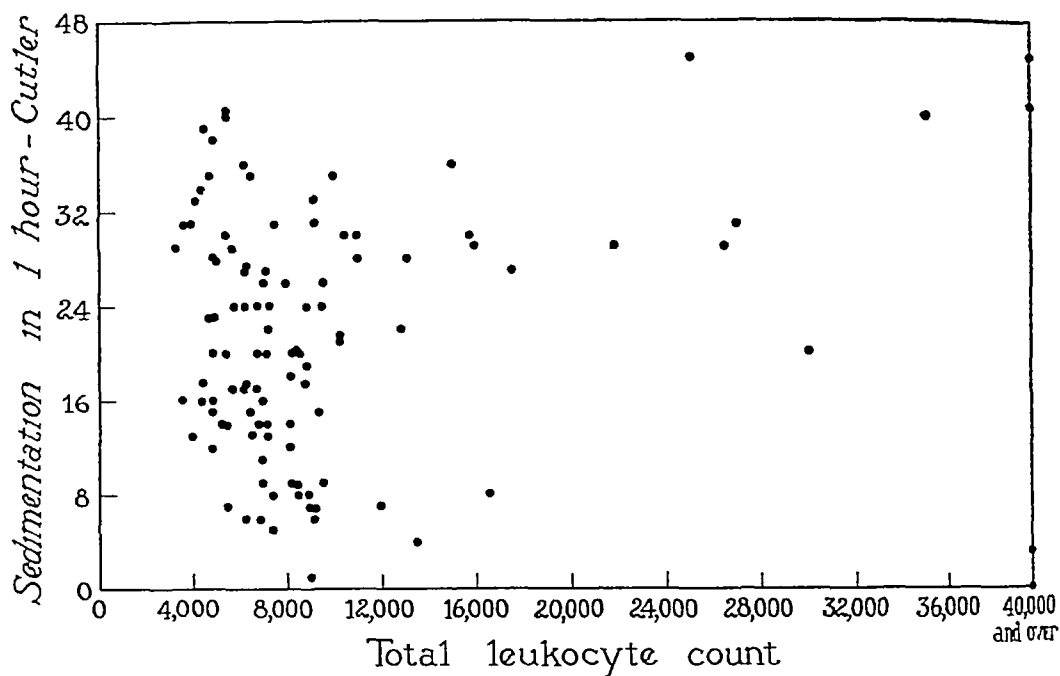


CHART 2 Relationship of total leukocyte count to sedimentation rate in one hour—Cutler

1 case of menorrhagia of functional type had a sedimentation rate of 17 mm with a hematocrit reading of 35. One case of pernicious anemia (untreated) with a hematocrit reading of 16 had a rate of 38 mm, and 1 case of microcytic anemia with a hematocrit of 12 showed 40 mm sedimentation in one hour. Whereas these patients with anemia show an accelerated rate, which is perhaps attributable to the anemia per se, there is 1 case of menorrhagia with a hematocrit of 36 and a rate of 6 mm, and 1 patient with polyposis of the colon with a rate of only 13 mm with a hematocrit of 27.

In group B are found those 6 instances in which a normal sedimentation rate is associated with evidences of immaturity in the leukocyte. These include single readings on a patient with localized carcinoma of the penis, 1 with a papilloma of the breast, 1 with chronic tonsillitis, 1 with pulmonary infarction with cardiac decompensation, and two readings on a patient with polycythemia vera.

In Chart 2 the total leukocyte count is plotted as the ordinate, and the sedimen-

tation in mm at the end of one hour as the abscissa. No striking correlation can be said to exist. The fact that only 18 cases of acute infections are included in this group probably accounts in part for this lack of correlation.

In Chart 3 the millimeters sedimentation in one hour is plotted against the polymorphonuclear percentage (leukemias omitted). Although there is a slight correlation existent, it can be readily seen that the sedimentation rate is much more often increased than the polymorphonuclear series of leukocytes. If we accept 8 mm as the upper limit of normal for the sedimentation rate, and 75 per cent polymorphonuclear leukocytes as a maximum in health, we have 57 cases in which the sedimentation rate is increased and in which the usual differential count gives no evidence of infection or tissue damage. In this group there are 2 cases of pernicious anemia and 2 of anemia due to blood loss. The remainder gave clinical evidence of tissue damage. One single case is found in which the sedimentation rate is within normal limits and the polymorphonuclear leukocytes are increased. This patient is the

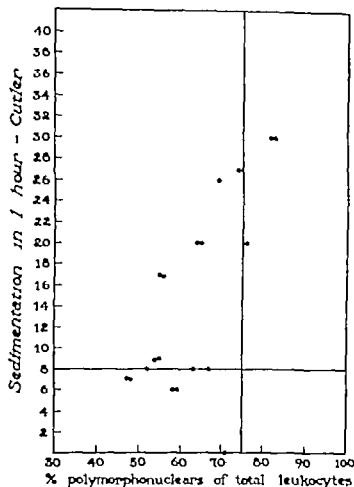


CHART 3 Represents the relation of the percentage of polymorphonuclears of total leukocytes to the sedimentation in one hour—Cutler

one previously referred to with pulmonary infarction

### Discussion

We have presented our observations on the sedimentation tests, the total leukocyte count, the percentage of polymorphonuclears, and the nonfilament count in a series of 103 hospital cases. There appears to be no correlation between the total leukocyte count and the sedimentation rate, although some correlation exists between the polymorphonuclear percentage and the sedimentation rate. In this series, however, the sedimentation rate appears to be a more sensitive index of existing pathology

Comparing the relative merits of the sedimentation test and the filament-nonfilament count, the two tests appear to give much the same general information. The sedimentation test appears more sensitive, for of the 34 cases in which the nonfilamented polymorphonuclear leukocytes were within normal limits and the sedimentation rate was increased,

the clinical picture would point to definite tissue damage, except in 4 patients with anemia. The group that showed a 'left shift' of the leukocytes with a normal sedimentation rate was made up of patients with early malignancy, benign tumor, chronic tonsillitis, and polycythemia vera and represent minimal tissue damage. One might gain the general impression from these results that the sedimentation test offers a more sensitive index of the degree of tissue damage than does the nuclear pattern of the leukocytes.

The factor of anemia in relation to the sedimentation rate has been much discussed,<sup>21-23</sup> and many correction charts have been devised. The basis for these correction charts has been test tube experiments, not studies of true anemias. In a series of 14 patients with pernicious anemia, Reichel<sup>24</sup> found that in recovery from a relapse, the sedimentation rate slows much more quickly under treatment than the hemoglobin rises showing that an increase in the sedimentation rate



in pernicious anemia is not merely a dilution problem. In experiments with rabbits, one of us<sup>37</sup> has shown that in anemia due to blood loss the acceleration of sedimentation depends on the stage of the anemia, that it is analogous to the dilution experiments in acute anemia, but that in chronic anemia the rate is much slower than dilution experiments would suggest. In this present series there were but 3 cases in which the anemia factor was confusing. The fact that each of these had normal filament-nonfilament ratios would indicate that the increased sedimentation rate may have been due to the anemia itself. In Guernsey's<sup>38</sup> series of 76 patients with acute abdominal disease, anemia became a confusing factor in the interpretation of the rate in only 1 case. Routine correction for anemia, from these facts, seems unnecessary. Even Wintrobe,<sup>39</sup> whose chart is rather widely used, suggests that occasionally the corrected rate may be misleading.

### Summary

The results of our observations on the filament-nonfilament count, the total leukocyte count, the polymorphonuclear percentage, and the sedimentation rate in 103 hospital cases have been presented.

A definite correlation did not exist between the sedimentation rate (Cutler) and the total leukocyte count, except in the pyogenic infections with considerable tissue damage.

Fifty-seven cases showed an increased sedimentation rate in the presence of a normal differential count. In 4 of these, anemia may have accounted for the accelerated rate, the remainder presented evidence of tissue necrosis. One case had an increase in polymorphonuclear cells with a normal sedimentation rate.

In 34 cases with accelerated sedimentation rate, the percentage of nonfilamented polymorphonuclear leukocytes was within normal limits.

In 8 cases the rate was normal, the nonfilament leukocytes increased. The same 4 cases of anemia that showed an increased sedimentation rate and a normal polymorphonuclear percentage

also showed a normal nonfilament count.

In this series of cases, the sedimentation rate appeared to be a more reliable index of the degree of tissue destruction than was the total leukocyte count, the polymorphonuclear percentage, or the nonfilament percentage. The increased nonfilament count seemed more indicative of tissue damage than the polymorphonuclear percentage.

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# HISTAMINASE IN THE TREATMENT OF PHYSICAL (HEAT) ALLERGY AND SOME OTHER CONDITIONS

## Report of 5 Cases

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**R**ECENTLY there has been an increasing interest among both research and clinical workers in the properties of the enzyme histaminase. In the constant search for a single ultimate remedy for all allergic conditions, the properties of this enzyme have been under close scrutiny.

The theory has been advanced, with some laboratory proof, that the allergic wheal and perhaps other allergic reactions are due to the liberation of histamine. The inference, therefore, is that if an enzyme (histaminase) is present in the body tissues at the time of the liberation of the histamine, this enzyme will destroy the noxious histamine and the allergic reaction will not occur.

### Preparation of Histaminase

Accordingly, potent extracts of histaminase were prepared in the author's laboratory and a limited clinical investigation was carried out. In 1929 Best found histaminase present in ox and dog lung. Most of the subsequent work in its pharmacodynamic and other properties was done by E. W. McHenry and associates of the University of Toronto.<sup>1-3</sup> With the kind advice and guidance of Dr. McHenry, batches of the enzyme were prepared by defatting minced hog kidney and then pulverizing the dried material. This was extracted with a buffered phosphate solution of pH 7.2. This solution was Seltz filtered, tested for sterility, and stored in rubber capped vials in the icebox.

Tests for potency were then made. Unfortunately, the standard method of assay required cats, and since these were not available, a new intradermal test on human skin was devised. In the standard method a known amount of histamine (1 mg.) is incubated in a water bath at 38 C. with varying quantities of histaminase

solution, while a current of oxygen passes through the solution. The quantity of enzyme that inactivates this 1 mg. of histamine in twenty four hours is called a unit. At the end of this time the mixture is injected intravenously into a cat and the remaining quantity of histamine is estimated by the drop in blood pressure. If the histamine is totally destroyed, then there is no drop in blood pressure. Utilizing the fact that the reaction is not immediate but takes about four hours to get well under way, the intradermal approximation test was devised.

The mixture of histamine and histaminase (to be tested) was prepared aseptically, and 0.1 cc. injected intradermally into the human skin. There was always a typical histamine wheal and flare produced in twenty minutes. Then the mixture was incubated as above. In twenty four hours 0.1 cc. of the incubated mixture was injected intradermally. Only a rough index of the potency was ascertainable because only a completely negative skin reaction would give indication of the viability of the enzyme. The size of the second reaction could not be used as a reliable guide of the potency. However, no skin reaction to the mixture would unequivocally denote an active extract of histaminase.

Further purification of the enzyme beyond this stage of simple extraction was not carried out. After many attempts to secure a standard purified extract, it was found that most final batches were not potent. In 50 purified batches there were only 2 that were potent. Apparently the purification inactivated the enzyme. However, almost every batch of the simple extraction was potent. Incidentally, the test for histamine of Hanke and Koessler<sup>4,5</sup> (the *p*-diazobenzenesulfonic acid reaction) was shown to be totally un-

# RELATION BETWEEN ANEMIAS AND DIGESTIVE DISEASES IN CHILDREN

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**T**HE digestive tract bears a reversible relationship with the blood. On first impression it appears as an ultrafilter surrounded by blood, the reaction between the two phases being reversible and involving diffusible compounds of relatively small molecular weight. But on careful study the two systems have a more deep-seated dependence on each other, with the functions of each determined by nutritional factors on the one hand and constitutional factors on the other. We may, therefore, evaluate the relationship in terms of nutritional, digestive, and blood factors, respectively, before proceeding to the anemias associated with alimentary dysfunction.

## Nutritional Factors

The hematopoietic system, like all others of the body, must be properly nourished for normal function. It is a highly specialized tissue that generates rapidly and continuously a supply of cells indispensable for life. The chemical composition of the blood cells is unique, and necessitates not only a continuous and adequate supply of certain specific nutrients for their synthesis, but about fifty nonspecific nutrients for the maintenance, growth, and development of the body as a whole. The integration of the body systems is such that no one system can be nourished adequately unless all others participate in the nutriment. It is not, therefore, a matter of providing special nutrients for the hematopoietic system, but all necessary nutrients for all bodily systems.

Nutritional adequacy can no longer be considered in terms of protein, carbohydrate, fats, minerals, and vitamins. The newer approach is to assess optimal nutrition in terms of twenty-two amino

acids from protein, dextrose from carbohydrate, linoleic acid from unsaturated fats, twelve minerals from fruits and vegetables, ten vitamins from various types of foods, water, and oxygen. The formation of blood cells by the reticulo-endothelial system necessitates special nutritional factors such as arginine, glutamic acid, proline and oxyproline from protein, iron, copper, manganese, nickel, and other minerals, the extrinsic factor of liver and other viscera, and vitamins B<sub>2</sub>, C, and D. In other words, of the fifty nonspecific nutrients necessary for the formation of all bodily cells, these few specific systems are indispensable for the maturation of blood cells. A deficiency in the provision of any of these nutrients produces corresponding types of anemia.

The *amino acids* are obviously indispensable for the synthesis of blood cells. The hemoglobin, in particular, composed of globins and pyrroles, requires the specific amino acids previously mentioned. Prolonged deficiency in any of the amino acids will produce anemia despite adequate provision of all other nutrients, for the marrow cannot produce the normal number of cells at a normal rate. It will function at a slower rate of speed, with the cells delivered into the circulation remaining normal until the marrow is exhausted. The protein level of the diet in infancy is usually adequate because it is formulated with milk as the basis. But as the child gets older the protein intake is gradually replaced by a variety of foods poor or incomplete in essential amino acids. As a matter of fact, most proprietary foods devoid of protein so displace the amino acid-bearing foods that protein deficiency is not an uncommon source of anemia.

*Iron*, copper, and other minerals are essential for the production of fully

hemoglobinized red cells. The body is not very efficient in accepting and utilizing iron, hence the supply must be both adequate and continuous. In the infant, iron is part of its maternal inheritance, the hepatic store being designed to supplement the low iron value of breast milk. Cow's milk is equally deficient in iron. Hence the need for supplementing breast or cow's milk feedings with iron from other foods or chemical compounds. A deficiency of iron causes an anemia in which the red cells are produced in relatively normal numbers but are unsaturated with hemoglobin. The anemia is, therefore, hypochromic with a low color index. Microcytosis and poikilocytosis are usually associated with hypochromia.

Copper catalyses the utilization of iron, accelerating the conversion of inorganic iron into hemoglobin, and thereby speeds up the process of red cell maturation. Copper is only effective in the presence of iron, and when the intake of calcium is large the amount of iron required is lessened. But the traces of copper necessary are nonspecific, as other metals—e.g., manganese, nickel, chromium—also accelerate red cell maturation.

The *extrinsic factor* is particularly abundant in meat protein. When acted upon by the intrinsic factor—an enzyme contained in normal gastric juice—a substance is formed indispensable for the maturation of red cells. The reaction is probably reversible according to the law of mass action. The substance has been designated by many names, such as the liver principle, the antianemia principle, the pernicious anemia factor, etc. Once formed in the stomach or upper duodenum in an acid medium, it is absorbed from the stomach and stored in the liver, kidney, brain, and other viscera. Its fundamental action is to mature the red cells or to prepare them for emergence from the marrow, and may be designated more specifically as the erythrocyte maturing factor—E.M.F.

It makes the red cells smaller when ready for delivery from the marrow, as the point of action is at the megaloblast

stage—hence the decrease in the volume of the red cells. A higher colloid osmotic pressure of the cell thus indicates maturation effected by the E.M.F., while an increase in the volume, or a macrocytosis, usually indicates a deficiency in E.M.F. by virtue of lowered colloid osmotic pressure. The normal child derives material from the food required to prevent macrocytic anemia. But defects in gastric and duodenal digestion or absorption of the substances formed from food lead to macrocytic anemia.

The *vitamins*, particularly B<sub>1</sub>, C, and D, are essential for normal hematopoiesis. Vitamin B<sub>1</sub> has been thought to act like an extrinsic factor, but it is now known that the sources of B<sub>1</sub> contain the extrinsic factor apart from the vitamin. The vitamin however, has been demonstrated to be essential for vascular integrity in the formation and repair of the semipermeable membranous tissue composing vascular structure. Vitamin C produces a definite reticulocyte response in microcytic anemia, the point of action of the vitamin being at the normoblast stage of red cell maturation. Vitamin D is involved in the synthesis of platelets from megakaryocytes.

### Digestive Factors

*Hydrochloric Acid*—The concentration of acid secreted by the stomach determines the availability of some of the nutrients necessary for normal hematopoiesis. It gradually increases from birth and varies in infancy according to heredity, constitution, and nutrition. It is markedly decreased by infections, fevers, hot weather, and emotional excitement. Optimal concentration of hydrochloric acid usually assures the secretion of the intrinsic factor, the availability of iron and catalytic metals. The total iron content in food is no true indication of the amount that will actually be absorbed, for in food the iron is present in the ferric state, which must be transformed into the ferrous state before absorption. This is effected by acid digestion, low oxygen tension, and an abundance of readily oxidizable substances in the food ingested.

and 10 micra. The bone marrow as shown by puncture is hyperplastic, but very few cells are delivered to the blood stream. Hence the reticulocyte count is low—about 0.5 per cent.

Chronic intestinal obstruction may produce a macrocytic anemia because the resultant vomiting and diarrhea interfere with the ingestion of the extrinsic factor and with the absorption of the E M F. Hence the need for a bland, low-residue diet rich in liver extract, or the administration of E M F by injection to correct the blood picture in the surgical management of the obstruction.

Celiac disease may be complicated by a macrocytic anemia because of the deficient absorption of the E M F from the small intestines aggravated by the diarrhea. While there is no specific defect referable to the absorption of this factor, the loss of fats, carbohydrates, and minerals in the fatty stools frequently decreases its complete absorption.

Sprue in particular produces macrocytic anemia, partly because of the dietary deficiency in the extrinsic factor and partly because of the deficient absorption of the E M F from the small intestine. The loss is increased by the characteristic foamy diarrhea. The anemia is generally of the normocytic type (Table 1).

### Normocytic Anemia in Digestive Diseases

Normocytic anemia develops from an acute external or internal hemorrhage from the gastrointestinal tract, from internal blood destruction from hemolytic poisons and intestinal parasites, and from deficiency diseases. The blood picture is characterized by color index 0.8–1.2, volume index 0.8–1.2, saturation index 0.85–1.15, and cell diameter 7 to 8 micra—all normal values except for anisocytosis.

Acute external hemorrhage in hemorrhagic disease of the newborn, intussusception, etc., produces a relatively normal blood picture at first. But within a day the red blood cells decrease and a large number of polychromatophilic cells, nucleated erythrocytes, and reticulocytes

TABLE 1—MACROCYTIC ANEMIA IN DIGESTIVE DISEASES

	Cell Count	Color Index	Volume Index	Satn Index	Cell Diam.
Intestinal obstruction	2.0	1.4	1.5	0.9	9
Celiac disease	2.5	1.2	1.3	0.9	8
Sprue	2.2	1.7	1.8	1.0	8

Color index > 1.1 = cells containing more hemoglobin than normal  
Volume index > 1.1 = cells larger than normal

appear in the blood. The symptoms of shock are due to decreased blood volume corrected by intravenous acacia solution and blood transfusion.

Internal blood destruction in lead poisoning, intestinal parasites, etc., is characterized by the signs of rapid destruction of hemoglobin and rapid red cell formation. There is no damage to the bone marrow, the hemoglobin lost from the blood circulation is decomposed within the body, and the substances necessary for red blood cell formation are transported back to the marrow for regeneration of new erythrocytes. But chemical poisoning shows basophilic stippling, and an increase in reticulocytes of the blood and intestinal parasites stimulate an eosinophilia.

Deficiency diseases such as pellagra, sprue, etc., reveal a failure of maturation beyond the karyocyte, pronormoblast, and normoblast stages, for the bone marrow is charged with these cells while the blood shows a low reticulocyte count, few nucleated erythrocytes, and no evidences of increased red blood cell destruction. Normocytic anemia occurs more often in these conditions than does the macrocytic type of anemia (Table 2).

### Microcytic Anemias in Digestive Diseases

Hypochromic microcytic anemia develops as a result of a deficiency in the substances necessary for the formation of hemoglobin—usually iron, copper, or protein. Hypochromic anemia is characterized by a low red cell count between 2 and 5 million, low hemoglobin between 3 and 11 Gm, low color index between 0.4 and 0.8, low volume index between 0.5 and 0.8, low saturation index between 0.6 and 0.8, low cell diameter between 6 and 7

TABLE 2—NORMOCYTIC ANEMIA IN DIGESTIVE DISEASES

	Cell Count	Color Index	Volume Index	Satu Index	Cell Diam.	Reticulocyte Percentage	
Acute external hemorrhage							
Hemorrhagic disease newborn	3.2	0.8	0.8	1.0	7.0	3.0	
Intussusception	3.5	0.8	0.9	0.9	8.0	2.0	
Intestinal blood destruction							
Lead poisoning	2.8	0.9	0.9	1.0	7.5	4.0	Basophilic stippling
Intestinal parasites	3.0	1.0	0.9	1.1	7.0	2.0	Eosinophilia
Deficiency diseases							
Pellagra	3.2	0.8	0.9	0.9	7.0	0.3	Pronormoblasts incr
Sprue	3.0	0.7	0.8	0.9	7.0	0.8	Pronormoblasts incr

Cell count = within normal limits.

Color index = 0.8-1.2 = cells contain normal or decreased hemoglobin.

Volume index = 0.9-1.1 = cells are normal size

micra, a preponderance of cells smaller in size and paler in color than the normal, poikilocytosis, and anisocytosis.

Chronic hemorrhage in ulcerative colitis, amebic dysentery, Meckel's diverticulum, etc., produces a microcytic anemia because of the loss of iron from body reserves. But the administration of adequate doses of iron as part of the therapy for this condition corrects the anemia despite continued loss of blood. There is difficulty, however, in providing the body with sufficient iron because of loss of appetite, and the infection of the ulcerated areas frequently causes hypoplasia of the bone marrow.

Iron deficiency in alimentary allergy produces a microcytic anemia because of protein restriction, thus limiting iron containing foods. The associated intestinal indigestion decreases absorption of iron, and the occasional decrease in the concentration of gastric hydrochloric acid further diminishes the liberation of iron from

organic combinations. The administration of inorganic iron as a dietary supplement clears the anemia.

Semistarvation in esophageal stenosis causes microcytic anemia. Proper feed

TABLE 3—MICROCYTIC ANEMIA (HYPOCHROMIC) IN DIGESTIVE DISEASES

	Cell Count	Color Index	Volume Index	Satu Index	Cell Diam.
Iron deficiency					
Alimentary allergy	4.0	0.6	0.6	1.0	7
Esophageal stenosis	3.7	0.4	0.5	0.9	8
Chronic hemorrhage					
Ulcerative colitis	3.8	0.7	0.6	1.1	"
Meckel's diverticulum	4.2	0.3	0.5	1.0	6

Cell count = normal or decreased.

Color index &gt; 0.8 = cells contain less hemoglobin than normal.

Volume index &gt; 0.8 = cells are smaller than normal

ings by gavage with added inorganic iron salts and oral administration of iron compounds after instrumental dilation of the stricture corrects the anemia (Table 3).

1060 Park Avenue

### STRIKING RESULTS PRODUCED BY DIABETIC CAMP

Conclusive proof of the efficacy of fresh air exercise, and sunshine in the treatment of diabetes was offered by the statewide diabetic camp for children just ended at Whitaker's Forest, a holding of the University of California in Tulare County. The camp was provided by a number of organizations and friends of the little diabetics, we are told in *California and Western Medicine*.

Evidence that the camp has made possible important new developments in the treatment of the disease was offered by Dr. Mary Olney, of the department of pediatrics, University of California Medical School, who was in charge. Dr.

Olney noted a remarkable reduction in the amount of insulin required, due to exercise and diet. She found also that the recreation features could be enlarged upon due to the response made by the children to the general health conditions prevailing. One overnight pack trip was made to General Grant National Park and another to Sequoia National Park. On both occasions the children slept in their blankets on the ground and prepared their meals in the open in camp style but with critical attention being paid to the items and the quantity of the diet, in keeping with their condition.

Stage Instructor: Have you had any stage experience?

Cadet: Well, I had my leg in a cast. —West Point Pointer

Obese Patient: Do I take these reducing pills on a full stomach?

Doctor: Goodness, no! They would roll off." —Medical World

# THE MODERN APPROACH TO THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS

JAMES ALEXANDER MILLER, M D , New York City

IT WAS less than sixty years ago at a time which corresponded with the discovery of the tubercle bacillus and also with the birth of the sanatorium movement that even among the best informed there existed no treatment of pulmonary tuberculosis that was considered to be of material value

It is only since the turn of the century, less than forty years, that our knowledge crystallized into the modern antituberculosis campaign through which this knowledge became generally available to the medical profession and also was gradually diffused among the laity

It was soon recognized that the great majority of patients applying for treatment were already in an advanced and often hopeless stage of the disease. Consequently, quite properly, the importance of earlier diagnosis has since then been constantly emphasized and the responsibility therefore placed largely upon the physician. We have made great progress but today physicians are expected to be able to recognize pulmonary tuberculosis at the time of its earliest development and yet it is a matter of common knowledge that this is still a comparatively rare achievement and that a considerable portion of cases are diagnosed and placed under treatment only after they have reached the stage of advanced disease

It is my present purpose to explore some of the reasons for this situation. This will lead us into the field of the pathogenesis of the disease so that we may better realize what it is that we are looking for, and toward that end it will be helpful to review the steps by which we have thus far arrived at our present situation

In the past generation increasing refinements of methods of physical exami-

nation were elaborated, under the leadership of Grancher, Kroenig, and others, in an effort to detect apical foci of disease at their very incipency. This emphasis upon physical signs, which were often elusive, led to a great complication rather than to simplification of the problem for the ordinary practitioner and to confusion and differences of opinion among the experts. In general, it may be said that it achieved only a moderate degree of success

Then came advances in the roentgen-ray technic and the widespread use of this method of examination. It immediately became obvious that many lesions could be detected by the roentgen ray which gave no detectable physical signs and that the extent, character, and behavior of these lesions could be more accurately determined by this method. It did not take long to develop a school of thought that came very close to the elimination of physical examination from the picture. Overemphasis upon physical signs undoubtedly led to the failure to detect many cases, and its overrefinement has in its turn resulted in the unjustified diagnosis of clinical tuberculosis in many cases where the tuberculosis was obsolete or where no tuberculosis at all existed. In like manner, overemphasized and overrefined roentgen diagnosis has led to similar errors in the interpretation of shadows as due to tuberculosis which had quite other etiology, or which, if tuberculous, were entirely healed and clinically obsolete. It is quite true that in general we can see more in the film than we can hear with our ear, but the problem of interpretation remains. We still need to be clinicians, not simply technicians

However, it must be agreed that roent-

*Read at the Annual Meeting of the Medical Society of the State of New York, Syracuse, New York, April 27, 1939*

gen examination has facilitated tremendous progress in our knowledge of the pathogenesis and clinical evolution of tuberculosis in the lungs and thus has done much to further more accurate diagnosis. It has corroborated physical examination and focused attention upon the apices, and it has shown us how much more widespread than previously was supposed is the incidence of recognizable apical lesions in the lungs of persons apparently well. It has also brought out the importance of the more acute modes of onset, the so-called "infracavicular infiltration," and it has greatly helped in the interpretation of the physical signs which occur both in the latent and often innocuous lesions and also in those cases of phthisis which develop slowly and insidiously.

It still remains true, however, that physical examinations and roentgen examination whether employed separately or combined, by no means give us the complete answer to our problem of early diagnosis.

There still remain for consideration the reactions created in the body by the infection the evidence of which is contained in the symptoms and certain clinical tests. It is by the symptoms elicited through the clinical history that the presence of the disease is often first suspected. It is also through them, as well as the clinical tests, that the question of activity of the lesions and consequently the significance of the physical and roentgen findings can best be determined.

In brief outline this completes the roster of the means at our command to make an early diagnosis of pulmonary tuberculosis. It will be noted immediately that there is nothing new or novel about them. The method and combination of their use is varied and will be summarized later, but they are all well known and what I have ventured to characterize as the modern approach to early diagnosis has nothing to do with these means in themselves but rather with the objective toward which their use is directed. Do we realize just what we are looking for in our effort to find early pul-

monary tuberculosis? I suspect that many of us do not and I believe that clarification of our ideas is to be found in a better understanding of the pathogenesis of the disease.

### Pathogenesis

It is, therefore, a concept of the pathogenesis with its clinical implications which is modern and which I wish to emphasize. After that is understood we will, I hope, be in a position to appreciate how the well known means and methods the old familiar tools, can be better employed so as more nearly to obtain our objective—early diagnosis.

Building upon the foundations laid by Kuss and Ghon, it was Ranke who developed the modern concept of the pattern underlying the evolution of tuberculosis in the body, namely, the three stages of the primary lesions, the generalization of the infection through the lymph and blood streams, and finally, its location in the various organs, especially in the lungs.

This corresponds closely to the pattern already established for syphilis and other systemic infections, but in tuberculosis there is a very widespread notion that pulmonary tuberculosis follows directly the inhalation of the tubercle bacilli, that is, that there is a direct relation between cause and effect with no intermediate process interposed.

It now appears, however, to be definitely established that the lesions following the primary infection rarely develop directly into serious disease of the lungs but that the bacilli drain from the primary focus into the adjacent lymph nodes where they multiply, but are held in check for indefinite periods of time, and it is from these nodes that generalization of the infection occurs by the lymphohematogenous route and thus promptly reaches the lungs. Here they are, for the most part, though not invariably, held, and characteristic lesions result, the nature of which depends upon the dosage of bacilli and the reaction of the tissues, but which are, in general, discrete and nodular in character, tend to become



fibrotic or calcified, and in the great majority of cases are quite innocuous

In a certain number, however, sooner or later activation of these nodular lesions occurs. The bacilli multiply, break through their barriers into the neighboring air passages, and thus it is that pulmonary tuberculosis of clinical significance begins. Technically, we designate as pulmonary phthisis this stage of the process where the method of extension of the disease through the air passages has come to prevail. We may with propriety designate as prephthisical the nodular pulmonary lesions above described which are the residues of the lymphohematogenous stage of dissemination before breaking through into the air passages occurs.

The modern concept of the pathogenesis of pulmonary phthisis, which is the most usual form of pulmonary tuberculosis that we have to recognize clinically, is that it almost always has its origin from these previous residues or prephthisical lesions and not from an immediate, new, outside, or exogenous infection.

The transition of prephthisical lesions into a progressive phthisical process is associated with caseation and breakdown of these lesions which leads to their breaking through into the air passages and thus to further dissemination of the infection through the bronchi. What starts these old foci into activity is not always clear, but local and general factors of resistance certainly play their part as does the effect of new exposure to outside infection which produces a sort of localized congestive tuberculin reaction, the so-called "trigger action" of Roedeker.

When the transition occurs, for the most part it does so insidiously and the development of the resulting phthisis is very slow and may remain subclinical for a long time. In other cases, however, the onset is more or less acute, associated with fever and other systemic symptoms, and is usually accompanied by the abrupt appearance of infiltrative lesions, the so-called "infraclavicular infiltrations." In these acute cases, as compared with those of insidious onset, the difference appears to be that of dosage on the one hand, and,

on the other, the direct accessibility to a fairly large bronchus which thus facilitates the simultaneous involvement of a considerable number of lung units. In still another type of acute onset the drift of the infection is toward the pleura instead of toward the air passages and here the resulting process is an acute pleural effusion, the essentially tuberculous nature of which is now generally recognized.

From this brief review of the pathogenesis, the answer to the question which we have raised as to what we are looking for in our efforts to make an early diagnosis of pulmonary tuberculosis is that in the main we are first to look for the secondary lesions which we have designated as prephthisical, and not for the primary lesions which for the most part do not produce clinical disease either in children or in adults. Then, having discovered these secondary lesions, which is usually best accomplished by roentgen rather than by physical examination, we are confronted with the difficult problem of determining their activity, for their presence alone presents only potential and by no means necessarily definitely established phthisis.

The fact is that not only is there a latent period of variable length (from a few months to many years) during which these lesions may persist practically unchanged, but it is also the circumstance that the majority of these lesions definitely undergo more or less complete regression and ultimate healing. Thus, there will be, at one extreme, cases in which prephthisical foci will take decades for their transition to phthisis, and, on the other, there will be cases in which the transition is acute and abrupt, occurring within a few days. Between these two extremes there naturally occur all possible combinations in which the foci undergo transition to phthisis after they have remained in the prephthisical stage for varying periods of time. Thus, under apparently identical conditions incipient pulmonary tuberculosis may be diagnosed too early in the case of the prephthisical lesions which are destined to

persist for many years without change and, on the other hand, it may be detected too late in the case of prephthistal lesions which have already acquired a progressive phthistal character and may presently undergo abrupt breakdown, although this may not be revealed to us by either the roentgen or other clinical evidence.

We thus begin to appreciate some of the difficulties of the situation and why cases reach a very advanced stage before they are discovered. In approaching the problem the physician will be aided by recognition of the fact that neither the roentgen film nor the physical examination, no matter how skillful, will suffice to establish a definite diagnosis, but that in addition he should acquire a thorough understanding of all of the circumstances under which the development of phthisis is to be suspected, especially the presence of prephthistal lesions, and should also carefully study all of the environmental and clinical criteria in each individual case.

He must recognize the fact that to stamp an individual as phthistal and subject him to a long and expensive cure with all of its mental anguish just because an old obsolete lesion has been discovered is a serious mistake to be as carefully avoided as the more serious failure to recognize phthisis in its earliest phase.

Both of these pitfalls can be avoided in most cases and we will now attempt to summarize briefly how the means at our command, to which we have already alluded and with which we are all familiar, can be best utilized toward that end.

### Clinical History

The value of the case history cannot be overemphasized in the study of pulmonary tuberculosis. Unraveling the story of what has preceded is often the key to the diagnosis. At the same time the history gives us invaluable aid in prognosis by acquainting us with background and personality of the patient. Our inquiry must first be directed to probably familial predisposition and opportunities for exposure. In the light of

recent epidemiologic studies we know that a history of exposure is of significance, regardless of age, although it is of greater significance in children, adolescents, and young adults than it is in individuals above the age of twenty five, however, even in the latter we must constantly bear in mind the possibility of resensitization and its effects which result from overexposure. Then our inquiry must include search for predisposing factors in the economic, social, and mental life of the patient which may lead to a decrease of resistance which plays an important role in the exacerbation of long latent prephthistal residues.

Realizing the marked tendency of tuberculosis toward latency and also its tendency to masquerade under a great variety of trivial ailments or other misleading conditions, we must not overlook any symptom or complaint of the patient. The correlation of preceding events, often widely separated in time, and the localization of their focal symptoms will aid us in piecing together the story of the evolution of the tuberculous process in the individual in question. This in turn will give us the key to the place or significance of the immediate presenting symptoms.

### Symptoms

We have already seen that many cases with obvious prephthistal foci in their lungs present no symptoms whatever. When these lesions become active they usually develop symptoms which may be very mild or gradual in the evolution or may come on abruptly with acute manifestations. The former type of onset is the more common one and represents the slow spread of the bacilli into the air passages in only moderate numbers, while the latter or acute type usually indicates a sudden spread of larger numbers of bacilli involving a more extensive area of the lung.

*The gradual onset* is characterized by indefinite constitutional symptoms such as malaise, fatigability, indigestion, nervousness, slight afternoon temperature, mild night sweats, and by such focal

symptoms as cough, expectoration, which is often slight, and sometimes hemoptysis. These symptoms are often so slight and so little disabling that the patient frequently neglects to seek medical advice for weeks or even months and then an unaware physician may fail to recognize their significance.

*The acute onset* usually occurs in one of two ways

(a) In a manner very similar to a gripe attack with considerable fever, general body pains and prostration, cough, and expectoration, frequently with hemoptysis. This is frequently the so-called "infraclavicular infiltration," but may occur in other parts of the lung. The acute symptoms often subside in ten days or two weeks and the diagnosis of gripe or bronchopneumonia is frequently made and thus the golden opportunity for early diagnosis of tuberculosis is lost. In other cases the disease progresses with persistence of fever and increase of symptoms and physical signs. This is the type of case which frequently calls for prompt collapse therapy. Or,

(b) The onset is characterized by an acute pleural effusion. This condition is usually promptly diagnosed but all too often its tuberculous significance, which should influence both the diagnosis and treatment, is missed and one of the most curable forms of tuberculosis is thus allowed to drift until, after a lapse of months or even years, the disease next manifests itself as progressive phthisis.

### Roentgen Examination

In the clinical study of pulmonary tuberculosis, roentgen examination is definitely more important and valuable than is the physical examination. This is partly because the roentgen film often reveals the lesions in a quasi-anatomic manner so far as location and extent are concerned, but even more so because it affords us the all-important earliest diagnosis both at the first appearance of, or in the subsequent changes occurring in, the lesions, as it reveals changes long before they could be detected by physical examination. Moreover, it permits the

most accurate and permanent basis for the comparative study of the progression of each case at any desired interval.

The advantageous use of this method depends, however, upon proper technique and interpretation which can only be acquired by considerable experience.

In early diagnosis the prephthysical nodules can generally be recognized only by the roentgen examination. One of the most valuable and significant developments in modern preventive medicine is the increasingly widespread use of roentgen-ray surveys of large groups of people supposedly well.

These surveys have revealed the extraordinary prevalence of these prephthysical lesions and have placed upon roentgenologists and especially upon clinicians a new and very great responsibility for correct interpretation of these films and for an appreciation of the fact that the determination of their clinical significance can usually not be made solely by this method but requires a combined study including the other criteria of activity of the disease.

There are, however, some roentgen film changes which either denote or strongly suggest the presence of activity. In the type of case with gradual onset, comparative films which show an increase in extent of densities previously observed or in which changes from sharply circumscribed to softer areas with fuzzy outlines are noted, or in which a breakdown to a cavity is visualized—all indicate that the disease is active and progressive.

Also in the cases with more acute onset the sudden appearance of a new shadow of notable size with the soft outlines characteristic of an exudative process, with or without evidence of cavities, clearly indicates the infraclavicular infiltration, although here both symptoms and physical signs are usually also present, but in no case is the evidence so convincing as it is upon the roentgen film.

Fluoroscopic examination has its place as a screening procedure and with practice it can be made most useful, but as a general rule it is the film upon which final

reliance must be placed, both for an accurate portrayal of the densities and as a basis for their later comparative study

In general, it may be said that no diagnostician, no matter how experienced, can afford to neglect an examination by the roentgen film in every case in which the suspicion of pulmonary tuberculosis has been aroused

### Physical Examination

We hear much of the lost art of physical examination in diseases of the lungs. A better appreciation of this time honored and still valuable method would be served by definition of its restricted field of usefulness rather than by pretension to a complete reliance upon it.

The truth of the matter is that a very large proportion, perhaps more than half of the cases of the type of which we are here considering, present no detectable physical signs whatever. On the other hand, the means of physical examination, unlike those of x-ray, are always available at the bedside, and also very occasionally significant signs are present when the roentgen films are negative, although it should be emphasized that this is a rare occurrence.

For this method to be really useful, it should be recognized what physical signs to look for and where to look for them. I would recommend that we clear out of our way the very numerous refinements of physical examination that have found their way into the literature, and concentrate upon the single sign of fine moist rales and how to elicit them. These rales constitute the cardinal essentials of physical examination and they are elicited by the use of sharp expiratory cough. Fine crackling rales are frequently present above the clavicle in the presence of prephthysical foci. They do not have the clinical significance of the moist rale. Also it is not generally appreciated that moist rales may temporarily appear over inactive foci during the presence of an intercurrent infection of the upper air passages or bronchi. Under such circumstances the rales last only for a few days but are often mistaken for evidence

of renewed activity of the disease. With this exception the appearance of localized moist rales where they have previously been absent is a strong indication of possible active disease.

The location of the rales which have a special significance in tuberculosis is, of course, the apical portions of the upper lobes and at first are usually unilateral. On the chest wall this corresponds anteriorly to the areas above the clavicle and to the first and second intercostal spaces, especially their inner or outer thirds, and posteriorly to the supraspinous fossae and the upper intrascapular areas above the level of the fourth dorsal vertebral spine.

The signs of pulmonary tuberculosis may of course also make their first appearance posteriorly over the upper portion of the lower lobe or anteriorly in the axillary region, but generally speaking, localized rales over the lower lobes are more apt to be caused by nontuberculous infections.

### Additional Clinical Tests

(A) *Examination of Sputum*—The demonstration of tubercle bacilli is the absolute and unimpeachable evidence of the tuberculous nature of the lesions. The examination of the sputum, therefore, still remains first among the laboratory aids to the diagnosis of pulmonary phthisis.

There is a tendency to lose sight of the great importance of this method of examination and of the fact that without positive sputum there can be no persistent progression of the phthisical process.

On the other hand, absence of tubercle bacilli in the sputum by no means excludes the presence of disease in a clinically important form and it is fatal to early diagnosis to wait for a positive sputum to confirm it for in the transition stage from prephthysical to phthisical lesions, scanty expectoration containing no demonstrable tubercle bacilli is practically the rule.

(B) *The Tuberculin Test*—A positive tuberculin reaction indicates a pre-existing tuberculin infection but by no means

necessarily indicates the presence of active disease.

A negative tuberculin reaction indicates absence of active disease with the exception of very advanced cases or those who are suffering from some other intercurrent disease, notably measles. It was formerly thought that a negative reaction indicated the absence of a previous infection, but it is now recognized that allergy represented by a positive tuberculin reaction may disappear to recur only after a new exposure to infection, but this fact is more important from an epidemiologic than from a diagnostic point of view.

Practically, the tuberculin test is of value mainly in infants or young children where the infection it represents must, from the very nature of the case, have been recent. The intensity of the tuberculin reaction does not have any definite relationship to the degree of activity of the lesions.

### (C) *Blood Tests* —

1 The Erythrocyte Sedimentation Rate. The rate of sedimentation of the red cells in the blood is increased in a number of other conditions as well as in tuberculosis. It is, therefore, of diagnostic value in tuberculosis only when all of the other possible causes can be excluded.

This procedure is of very great value as an index of activity and also for prognosis when repeated determinations are made at intervals for comparison. The normal rate is below 10 millimeters per hour and anything above 18 millimeters is of real significance as an indication of active disease.

2. The Leukocyte Count. Changes in the leukocyte blood picture are frequent and of significance in the progress of pulmonary tuberculosis, and are of value both in diagnosis and prognosis.

The total leukocyte count is usually low in early tuberculosis but when acute exudation or caseation occurs it is apt to be elevated sometimes to a considerable degree. The differential count may be quite normal but in the case of active disease the polynuclear cells tend to in-

crease at the expense of the lymphocytes and conversely the lymphocytes become relatively increased as the process becomes less active. With active disease the polynuclear blood picture shows an increase in the percentage of the immature forms, presenting the shift to the left in the differential polynuclear count, emphasized by Arneth and by Schilling.

Sabin has also shown that changes in the number and percentage of the monocytes afford a valuable guide to the progress of tuberculosis in animals and clinically they have been found of value in human tuberculosis also. The method that has been found of greatest value is expressed in the monocytic-lymphocytic ratio. The relative increase of monocytes tends to denote increased activity and progression of the disease and, conversely, a similar increase of the lymphocytes denotes less activity and a more favorable prognosis. The normal M/L ratio averages 0.2 to 0.5. A materially higher ratio than this is, therefore, an indication of activity and progressive disease and a normal ratio is correspondingly favorable.

Medlar and Crawford have elaborated an index of the leukocytic picture which includes all of the factors of the M/L ratio, the total leukocyte count, and the percentage of monocytes. This is known as Medlar's index. A combination of the determination of the sedimentation rate and of Medlar's index is becoming increasingly employed as a test of activity of disease and is of real value.

3 The Complement Fixation Test. This is still being used by some workers as a diagnostic test in tuberculosis, but its value is very restricted and doubtful. Recently Wadsworth and his co-workers have suggested improvements in the method which may restore it to a place among the tests for activity and as a guide in prognosis.

4 Brown and Sampson's Five Cardinal Points. These workers have analyzed the histories of 280 cases of minimal pulmonary tuberculosis in a manner which is a real contribution to the simplification of earlier diagnosis. Their results are tabulated on the opposite page.

Positive X Ray Evidence 99%	Positive Sputum 35%	Physical Signs (Rales) 27%	History of Hemoptysis 20%	History of Pleural Effusion 12%
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From these studies one finds that the x ray evidence is the factor of outstanding importance and that positive sputum is present in only 35 per cent of these early cases and definite physical signs in only 27 per cent.

In estimating the practical value of this simple table of findings one can assume that the unimpeachable evidence of positive sputum establishes the diagnosis quite independent of any other finding. That the presence of any one of the other four conditions establishes a definite suspicion of tuberculosis. That the association of any two of the four together in one case establishes a positive diagnosis and, finally, that, of them all, the x ray evidence is the most constant and consequently the most valuable.

#### Combined Evidences of Activity

It is obvious from this discussion that the determination of the presence or absence of activity of disease is a crucial factor in the diagnosis of early clinical tuberculosis.

What has already been said on this subject may be summarized as follows:

1 There is no single absolutely reliable sign or symptom of activity. Its determination must rest upon the most careful and thorough consideration of all of the general and local symptoms and signs, together with the results of the various laboratory and clinical studies.

2 The suspicious general symptoms are fatigue, anorexia, irritability, loss of flesh and strength, afternoon fever, and night sweats.

3 Suspicious local symptoms are cough, expectoration, hemoptysis, and pleural pain.

4 The suspicious physical signs are localized, moist rales over certain special areas, especially the upper lobes, and those of pleural effusion.

5 The suspicious roentgen evidence is the appearance of new soft densities,

especially in the upper lobes, the extension of areas of density previously noted or their change from circumscribed nodular or prephthisical shadows to soft hazy ones, or, finally, the appearance of new additional densities.

6 Certain blood changes, especially an increased erythrocyte sedimentation rate and an elevated M/L ratio, either alone or in combination with the other leukocyte factors included in Medlar's index, indicate activity.

In concluding this brief review of signs of activity, I wish to comment upon two of them which sometimes present puzzling problems. I refer to the fact that neither positive sputum nor hemoptysis necessarily in themselves indicate active disease, but the decision that they do not in any individual case should only be made after careful study and by a physician who has had considerable experience with tuberculosis.

#### Conclusions

I have emphasized the importance of the recognition and behavior of prephthisical lesions for the reason that with the development of widespread roentgen surveys it is my belief that it is in this particular direction that the most important immediate advance can be made in earlier diagnosis of phthisis and consequently in the prevention of much of the advanced and disabling disease that now exists.

It is to be recognized, however, that the prephthisical lesions are not always discernible upon roentgen films and that in many cases the first clinical manifestations of the disease are already in the stage of phthisis. It is also to be recognized that in some of these cases the active disease may be attributable to a new exogenous infection.

The recognition of these cases is comparatively easy and in any event the same principles apply to them as we have al-

ready discussed in our consideration of the signs of activity

In conclusion it is to be emphasized that the final step in the diagnosis is the correlation of all the data available from the history, the general condition of the patient, and the findings by the various methods of examination

In many cases this requires time and study. The physician should always be willing to keep the patient under observation and to make several examinations before reaching a final conclusion, unless the evidence is conclusive on the first examination

Snap diagnoses have no place in medicine, and nowhere do they lead to more unfortunate consequences than in the

problems of pulmonary tuberculosis. On the other hand, it should be possible to reach a definite conclusion within a reasonable length of time. The few cases that are still doubtful after observation for a week or two can be kept under further observation under conditions which will safeguard their health, in the event that tuberculosis is finally discovered

An undiagnosed early tuberculosis may result in the most serious consequences to the patient. An unjustified diagnosis of tuberculosis results in hardship and injustice. With care and with proper consultation, if necessary, a true diagnosis can almost invariably be determined

133 East 64th Street

#### FRENCH MEDICAL MOBILIZATION

Long before the war, France had prepared its medical mobilization. A large number of France's 28,000 physicians have been drafted for the army, says a Paris letter to the *J. A. M. A.* In fact, a law passed last year permits the government to commandeer the services of every Frenchman 18 years and over, including female physicians. The character of modern warfare is different from that of previous centuries. Until the French Revolution, war was a vocation and mercenary soldiers fought on limited territories. Their wounds were treated by "surgeons," one of whom was Ambroise Paré, the father of French surgery. Many others have left their mark in the history of medicine. Today the entire nation, except women and children, is engaged in war.

Few physicians have been exempt from military duty. 72 per cent serve in the national defense, 67 per cent of these wear uniforms, 5 per cent are civilians who function partly under army orders or those of the civil government. Accordingly, there remain about 6,000, many of whom are elderly or infirm. In consequence, many small towns and country regions have no medical service. Formerly, armies carried with them not only their "surgeons" but also their ambulances and to a certain degree their hospitals. Nowadays, except for establishments at the front which are, above all, centers of first aid and subject to quick changes, military health service coincides with civil health service. It includes large medical centers the equipment of which has been planned in times of peace and which utilize the hospital resources of peace times. Besides the wounded, the sick, such as tuberculous persons, have to be taken care of. From the medical point of view, both the tuberculous soldier and

the tuberculous civilian are the same. Shifts of specialists have therefore been provided who look after civilian and military tuberculous patients in the sanatoriums, look after their recovery and follow them up after they leave the army.

What becomes, under these circumstances, of medical instruction? Students continue to enroll to the extent to which mobilization permits young men to undertake university studies, but the means of instruction have been greatly reduced. In large cities hospital training has reached a stage of anemia, partly because of the reduced population evacuated in large numbers and because of the abandonment of many classrooms as too exposed to the dangers of bombardment. The Faculty of Medicine of Paris had to move to Nantes to remain until further orders. Fifty-two per cent of its professional staff, 75 per cent of the agrégés, or assistants, and 90 per cent of the heads of laboratories or prosectors have enlisted. The students called to the colors there receive credits corresponding to their medical standing. Not only are arrangements made for examinations and thesis preparation but, in certain towns farther back from the front, courses of study lasting several weeks are organized which permit the students to get ready for examinations before examiners who, likely enough, will consider emergency conditions. Precautions have been taken for laboratories. Fragile instruments, museum collections, ornamental objects, and rare books have been stored in protected cellars. The Faculty of Medicine of Paris continues, but its activities have been largely curtailed. War destroys not solely human lives and human works. It undoes spiritual and moral values often more difficult of replacement than a railroad bridge or a model factory.

# Society Activities

At its meeting on November 9, 1939, the Council adopted the following resolutions in memorium of two recently deceased officers

## Dr James H Borrell

The Medical Society of the State of New York has suffered an unusually tragic loss in the death of its president-elect Dr James H Borrell on September 28, 1939. Dr Borrell was born in Buffalo in 1890 and graduated from the School of Medicine of the University of Buffalo in 1914. He continued his studies by a three-year residency in the Edward J Meyer Memorial Hospital of Buffalo and followed this with a course in urology at the Post-Graduate Hospital of New York City. In his specialty Dr Borrell rose to the heights of leadership and became a member of the American Urologist Association, a Fellow of the American College of Surgeons, and a diplomate of the American Board of Urology.

Along with his steady advance in the private practice of medicine, Dr Borrell contributed greatly to humanity by devoting a natural aptitude and much sacrifice of time and thought to the needs of organized medicine. He was

for years, representing Erie County, a member of the house of delegates of the State Society. In 1936 he was elected second vice president, and in 1937 he was chosen delegate to the American Medical Association. In 1938 he became a member of the Council of the State Medical Society and was selected chairman of the Committee on Legislation. At the Annual Meeting in 1939 the Society recognized and honored him by elevating him to the office of president-elect.

His love and consideration for others, his fairness, and his frank fearlessness to defend the cause of justice are a revered memory to his colleagues and will be an inspiration to young physicians for many years to come.

Be it resolved that the Council of the Medical Society of the State of New York adopt these statements as an appropriate and permanent record of the death of its late president-elect, Dr James H Borrell.

## Dr James E Sadlier

Dr James E. Sadlier, past president of the Medical Society of the State of New York, was, at the time of his death, chairman of its Board of Trustees, having been a member of that Board continuously since 1935. Previously he had been chairman of the Public Relations Committee from 1928 to 1935 and as such was actively engaged in the formulation of guiding principles for the acceptance of the responsibilities of organized medicine for the public good. He was the enunciator of principles of social and economic justice which are secure in medical precept forever. During the period of his executive connections with the Medical Society of the State of New York (1926 to 1939) as president-elect, president, and past president, things were designed that have become essential machinery for the influential operation of the State Society in relation to public affairs and for a beginning of a new epoch in the practice of medicine and the social sciences. This particularly important period in his career was the most rapidly changing one of all time in medicine and in public health administration. That he lived effectively the while with simplicity and honesty, saying and doing things with clarity, thoughtfulness, and tranquillity is his unique contribution to medicine as an authoritative agency.

Dr Sadlier was never a timeserver, never did he seek the limelight. He was an unostentatious doer of good. The bright light, however

shone on him to illumine his very worth. As a busy successful surgeon and hospital organizer, he sought fulfillment of his obligations not only to his family and his profession but also to the civic affairs and to the religious life of his home town. He built for the community, he worked for it and he brilliantly served it. He was a forceful, charitable, and lovable friend to all men.

We hear at times some elder practitioner of medicine spoken of as a doctor of the old school. It is a term of endearment and respect. It grows out of an association with a pleasing character through many years. Dr Sadlier however was not a doctor of the old school. To be sure he had the courtliness, the courteousness and the charm of bygone days. Nevertheless, he was a doctor of a new school. He was of that school that sees vividly and analyzes keenly the more recent things that have glorified, advantaged, puzzled or troubled medicine as the circumstance may be. A warm, colorful personality, his equanimity, his freedom from rancor in debate, and his generosity made him a much sought councilor. He did not raise a voice in idle controversy, let petulance, nor argument or anger rob understanding.

His own standards for charity through right counsel, for human kindness, and for gentle sincerity fix in him the attributes of a great physician and a noble friend.



## 1939 Annual Conference of State Medical Association Secretaries and Editors

**G**REAT interest in several matters of more than ordinary present import to the medical profession was shown at the Annual Conference, which was held under the auspices of the American Medical Association on November 17 and 18, 1939, in Chicago.

The keynote of the meeting was the announcement by the Board of Trustees of an eight-point platform of principles of purely constructive nature that had been designed to solve the nation's health problems. These are in accord with policies adopted by the House of Delegates of the Association. The announcement follows:

### THE PLATFORM OF THE AMERICAN MEDICAL ASSOCIATION

"1 The establishment of an agency of federal government under which shall be coordinated and administered all medical and health functions of the federal government exclusive of those of the Army and Navy.

"Today the medical and health functions of the United States are divided among a multiplicity of departments, bureaus, and federal agencies. Thus, the United States Public Health Service is in the Federal Security department, the Maternal and Child Welfare Bureaus in the Department of Labor, the Food and Drugs administration in the Department of Agriculture, the Veterans' Administration and many other medical functions are separate bureaus of the government. The WPA, CCC, and PWA are concerned with a similarity of efforts in the field of preventive medicine. The Federal Works Administration and the Federal Housing Administration also have some medical functions.

"Since 1875, the American Medical Association has urged the establishment of a single agency in the federal government under which all such functions could be correlated in the interest of efficiency, the avoidance of duplication, and a saving of vast sums of money. Such a federal health agency, with a secretary in the cabinet, or a commission of five or seven members, including competent physicians, would be able to administer the medical and health affairs of the government with far more efficiency than is now done.

"2 The allotment of such funds as the Congress may make available to any state in actual need for the prevention of disease, the promotion of health, and the care of the sick on proof of such need.

"The physicians of the United States have

given freely of their time and of their funds for the care of the sick. Their contributions to free medical service amount to at least \$1,000,000 a day. The physicians of this country have urged that every person needing medical care be provided with such care. They have urged also the allotment of funds for campaigns against maternal mortality, against venereal disease, and for the investigation and control of cancer. The medical profession does not oppose appropriations by Congress of funds for medical purposes. It feels, however, that in many instances states have sought aid and appropriations for such functions without any actual need on the part of the state, in order to secure such federal funds as might be available. It has also been impossible, under present technics, to meet actual needs which might exist in certain states with low per capita incomes, with needs far beyond those of wealthier states, in which vast sums are spent.

"It is proposed here simply that Congress make available such funds as can be made available for health purposes, that these funds be administered by the federal health agency, mentioned in the first plank of this platform, and that the funds be allotted on proof of actual need to the federal health agency, when that need be for the prevention of disease, for the promotion of health, or for the care of the sick.

"3 The principle that the care of the public health and the provision of medical service to the sick is primarily a local responsibility.

"Obviously, if federal funds are made available to the individual states for the purposes mentioned in the second plank of this platform, there might well be a lessened tendency in many communities to devote the community's funds for the purpose, and, in effect, to demand that the federal government take over the problem of the care of the sick. Hence, it is suggested that communities do their utmost to meet such needs with funds locally available before bringing their need to the federal health agency, and that the federal health agency determine whether or not the community has done its utmost to meet such need before allotting federal funds for the purpose.

"4 The development of a mechanism for meeting the needs of expansion of preventive medical services with local determination of needs and local control of administration.

"The medical profession is not static. It wishes to extend preventive medical service to all of the people within the funds available for such a purpose. Obviously, this will require not only a federal health agency, which may make suggestions and initiate plans, but also a mechanism in each community for the actual expansion of preventive medical service and for the proper

expenditure of funds developed both locally and federally. In the development of new legislation such mechanism may be suitably outlined

- "6 The extension of medical care for the indigent and the medically indigent with local determination of needs and local control of administration

The medical profession does not yield to any other group in this country in its desire to extend medical care to all of those unable to provide themselves with medical service. The American Medical Association through its House of Delegates has already recognized the possible existence of a small group of persons able to provide themselves with the necessities of life commonly recognized as standard in their own communities but not capable of meeting a medical emergency. It is recognized, however, that only persons of the same community fully familiar with the circumstances can determine the number of people who come properly under such classification and that only persons in actual contact with such instances are capable of administering suitably and efficiently the medical care that may be required. Hence, it is the platform of the American Medical Association that medical care be provided for the indigent and the medically indigent in every community but that local funds be first utilized and that local agencies determine the nature of the need and control the expenditure of such funds as may be developed either in the community or by the federal government

- "6 In the extension of medical services to all the people, the utmost utilization of qualified medical and hospital facilities already established

In the so-called National Health Program it is asserted that one-half the counties of the United States are without suitable hospitals and vast sums are requested for the building of new hospitals. In contrast reputable agencies within the medical profession assert that there are only 13 counties more than 30 miles removed from a suitable hospital and that in 8 of those 13 counties there are five people per square mile. In the United States today the percentage of hospital beds per 1,000 of population is higher than that of any other country in the world. This fact is completely ignored by those who would indulge in a program for the building of great numbers of new hospitals.

Moreover it seems to be taken for granted that hospital building has languished in recent years whereas considerable numbers of hospitals have been built with federal funds by various state agencies and also by the PWA the WPA and by the Federal Works Administration.

Analyses may indicate that in many instances such hospitals were built without adequate study as to the need which existed or as to the possible efficient functioning once it was erected. Moreover, there is evidence that in recent years many of the hospitals of the United States known as nonprofit voluntary hospitals have had a considerable lack of occupancy due no doubt to the financial situation in considerable part. It seems logical to suggest then, that such

federal funds as may be available be utilized in providing the needy sick with hospitalization in these well-established existing institutions before any attempt is made to indulge in a vast building program with new hospitals. In this point of view the American College of Surgeons the American Hospital Association, the Catholic Hospital Association, the Protestant Hospital Association and practically every other interested voluntary body agree.

Again it has been argued that the demands for medical care in some sections of the country might require the importation of considerable numbers of physicians or the transportation of numbers of physicians in the areas in which they now are to other areas. In this connection it would seem to be obvious that a change in the economic status of the communities concerned would result promptly in the presence of physicians who might be seeking locations. The utilization of existing qualified facilities would be far more economical than any attempt to develop new facilities.

- 7 The continued development of the private practice of medicine, subject to such changes as may be necessary to maintain the quality of medical services and to increase their availability

In the United States today our sickness and death rates are lower than those of any great country in the world. This fact was recognized by the President of the United States when he sent the National Health Program to the Congress for careful study. The President emphasized that a low death rate may not mean much to a man who happens to be dying of tuberculosis at the time. The medical profession recognizes the importance of doing everything possible to prevent every unnecessary death. At the same time it has not been established by any available evidence that a change in the system of medical practice which would substitute salaried government doctors for the private practitioner or which would make the private practitioner subject to the control of public officials would in any way lower sickness and death rates.

There exists of course the fact that some persons are unable to obtain medical service in the circumstances in which they live and that others surrounded by good facilities, do not have the funds available to secure such services. Obviously here again there is the question of economics as the basis of the difficulty and perhaps lack of organization in distribution of medical service and a failure to utilize new methods for the distribution of costs which might improve the situation.

The medical profession has approved prepayment plans to cover the costs of hospitalization and also prepayment plans on a cash indemnity basis for meeting the costs of medical care. It continues however to feel that the development of the private practice of medicine which has taken place in this country has led to higher standards of medical practice and of medical service than are elsewhere available and that the maintenance of the quality of the service is fundamental in any health program.

## "8 Expansion of public health and medical services consistent with the American system of democracy

"Careful study of the history of the development of medical care in various nations of the world leads to the inevitable conclusion that the introduction of methods such as compulsory sickness insurance, state medicine, and similar technics results in a trend toward communism or totalitarianism and away from democracy as the established form of government. The intensification of dependence of the individual on the state for the provision of the necessities of life tends to make the individual more and more the creature of the state rather than to make the state the servant of the citizen. Great leaders of American thought have repeatedly emphasized the fact that liberty is too great a price to pay for security. George Washington said 'He who seeks security through surrender of liberty loses both.' Benjamin Franklin said 'They that can give up essential liberty to obtain a little temporary safety deserve neither liberty nor safety.'

"In these times, when the maintenance of the American democracy seems to be the most important objective for all the people of this country, the people may well consider whether some of the plans and programs that have been offered for changing the nature of medical service are not in effect the first step toward an abandonment of the self-reliance, free will, and personal responsibility that must be the basis of a democratic system of government."

THE various angles of this program were discussed by Dr. Arthur W. Booth, chairman, and Dr. Austin A. Hayden, secretary of the Board, Dr. Rack Sleyster, president, and Dr. Nathan B. Van Etten, president-elect of the American Medical Association.

The progress of the Survey of Medical Care by county and state medical societies was described by C. Ellsworth Nyberg, of the Bureau of Medical Economics. Reports had been received covering upwards of 49,000,000 of the population in different areas. The data will appear in a volume to be issued in January, 1940.

Medical service plans in four states were the subject of addresses by Norman F. Scott, executive assistant of the Medical Society of New Jersey, L. Fernald Foster, secretary of the Michigan State Medical Society, V. W. Spickard, secretary of the Washington State Medical Association, and Walter F. Donaldson, secretary of the Medical Society of the State of Pennsylvania. These were all of the nature, in general, of voluntary cash indemnity insurance for medical expense. Considerable variation in method exists and it was made clear by all that these plans face many problems that await trial for final solution.

Other subjects of discussion were "Rural Medical Service" and "Meeting Legislative Problems."

At the dinner meeting of the editors of state medical journals, the speaker of the evening was Dr. Samuel J. Kopetzky, of New York City, of the NEW YORK STATE JOURNAL OF MEDICINE. His address, "The Role of State Medical Journals in Organized Medicine," follows.

"I know of no peculiar attributes or personal experiences which entitle me to talk to you, my colleagues, with great authority on the subject to which I am called upon to respond. I must, therefore, assume that it is due to my maturity, and the experience I have gained in over eighteen years in the editorship of the *New York Medical Week*. The sole revenge that maturity can take upon the rest of you—all editors and secretaries of medical societies—is to preach at you! I have been the victim of innumerable postprandial addresses. I should have mercy in my heart! The after-dinner speech is an American vice, which surely ought not to be unduly encouraged!

"However, we are met upon a suitable occasion, and I shall mix mercy with justice and, if possible, add what I can of wisdom. I shall attempt to be reasonably brief.

"We are all interested in state medical journals, we are representatives of the editorial group, and as such are presumed effectively to function as editors.

"What is an editor? One who edits, one who oversees the selection, preparation, and arrangements of material for publication, one who prepares for use or publication by reviewing, compiling, collecting, and correcting, one who has been charged with the responsibility of a department of a newspaper or publication, one who writes editorials.

"Here tonight we are less concerned with these routine duties—we take them in our stride and either competently, or indifferently, carry on.

"What constitutes an editorial? This is an article in a journal or publication presumably written by the editor or his subordinates and published as an official argument or expression of opinion. It is upon this aspect of editorship that I want to concentrate your thoughts and evoke your reactions. The success of a journal or publication is not based so much upon its informative articles—although they too are important—as it is upon the editorial expression of opinion. The articles are of use to the medical profession by reason of their novelty, their ingenuity, or their report of completed research, as well as because of the interest that recorded laboratory data and clinical bedside observations hold for the average run of the medical journal reading public. But only that medical publication reaches distinction, attains prestige, and wields influence whose editorial pages make

it a journal of opinion. Where you find a great medical journal of opinion there you invariably find that the printed page reached the light through the shadows cast upon it by a competent editor. An editor is as great as his ability to bring to his readers those facts and opinions which they had but were unable to express clearly. In presenting to them their thoughts anew, an editor is great if he can so bring them back to his reader in an angle which will cause him to fall into line with the policies in the publication. When done with skill, this may frequently cause the reader to do an about face.

Among us who are editors of journals, in the interlocking chain of constituent bodies of this great American Medical Association the editorial message naturally must be based upon the adopted policy of the organizations we serve. The editor must be anonymous. If his editorial is not unsigned and anonymous, it becomes the opinion only of the one who signed it and when quoted, it is quoted as his opinion. It is a fundamental formula in democratically controlled and run organizations that the association—the aggregate of its members—and its voice is more important and of higher value than that of any one officer or individual within the organization. So too with our publications—the journal itself is greater than any of its editors, and it—the journal—must express itself and it must not express or enhance the editorial writer. If perchance what the editorial page says is good, rings true, and carries a potent message then the journal should be credited and the journal is quoted and attains prestige.

A real editor—one who knows lives, and feels the worth of his job—rejoices in the glorious anonymity which good editorial writing implies. An editor is presumed thoroughly to know the topic upon which he writes. So comprehensive should be his grasp that he should be able to deliver his message in a few pungent paragraphs. It is a truism that the better the mastery of any topic, the less will be the number of words necessary to tell its story. Thus, the editorial becomes distinguished and differentiated from an article written upon the same topic. Reiteration is the essence of teaching. Hence it is within the realm of good editorship to repeat, in different form patterns of words, the same message over and over again. Truths held sacred, traditions hallowed by time and usage, and policy which is being stressed—these lose nothing in being retold and re-emphasized. Every truth and every policy has many facets. One aspect and one elemental factor should be the backbone of each repetition of the editorial comment. As an example in point. Recently the president-elect

Dr Nathan B Van Etten in his address before the Pittsburgh Academy of Medicine said in speaking on "The American Way" The best program for medicine should be the product of the best minds of the American people. I propose that it be written by physicians, and when approved by organized medicine that it be submitted to the Congress. I believe that we should try to find an American Way—built upon the sound foundations of American experience. This we in New York, will put on our masthead and keep it there during succeeding issues. Editorially we shall reiterate the message this masthead contains, in our endeavor to make it reach the value of a household word.

An editor must be entirely untrammelled and free to express himself. This freedom should range far and wide but not extend beyond the framework of adopted policy. Intramural groups and political blocks must never be favored one above the other. They all must be tolerated. All must have the editor's sympathetic ear but no one must control his potent pen. His office must never be used as an intramural steppingstone for the almost unavoidable political groupings and ambitious aspirations of one sector of the membership over that of another—since the whole membership is actually the editor's collective employer. He serves all of them best when he remains an observer, somewhat aloof, intensely sympathetic, and yet always beyond intramural politics. Policies are greater than people, and problems always outweigh parties.

Happy indeed is the editor of a state journal who successfully attains such a position among his fellow members. He must beware lest he be lured by the siren voice of intramural pressure groups who have a vested intellectual and evangelistic interest in some form of public health education propaganda. I am referring to very worthy groups among us, for example groups interested in the blind, in the deafened and in the control of cancer and of tuberculosis. Such groups send to the public their own particular messages. The editor of our state journal—having won the confidence of his readers—serves them as a guide and must stand between the strenuous special pleaders of these groups and the general run of the profession. In no case should the editor become one of the special pleaders.

The editor must defend traditional policies of the profession against the general public, which often clamors for hasty and unwise change. The editor must know that there are always those who delight in tagging themselves with the label of 'progressive' because of an inherent restless de-

sire to bring about change. It remains to be seen whether or not the change is really a progression! At the same time, the editorial must be so employed that it must lead the profession itself away from its inbred aversion to any change. The editor must be a courageous leader, and editorially our state journals must stress an appreciation of new situations and new methods to meet them. The age we live in is one of fast movement. The editor must sense the trends of the time in which he is living, and must present the trends of his day, so that our readers—first, the medical profession, and second, the public it serves—will appreciate the changes taking place about us and be prepared mentally by an intelligent awareness of the current situation, and thus be able to build new methods and evolve new technics to meet the changing trends of the day. All this must be within the framework of sound proposals and adopted policies.

"The end to be achieved by the medical editor goes further than merely to educate both public and profession for cooperation on accepted policies only. He must prepare groundwork, pave new highways, light up darkened avenues of thought for the appreciation of needs for change in policy and in the development of policy. He must do this, even though some of these changes are generally felt to be unpopular with the profession at the given moment.

"The medical editor should avoid the use of generalities to help him win his fights. Facts and figures are always the best arguments, and the editor himself should never be fooled by generalities and slogans. Slogans are the verbal anesthetics which lull intelligent apprehension of factual data into discards. Most slogans are actually trite phrases framed to nullify the necessity for thinking. They are put forward in the effort to have the casual reader substitute them for conclusions arrived at by deductive reasoning. The editor himself must scrupulously avoid employing slogans. If worthy of the editorial pen he wields, his readers have a right to expect better things than that from him.

"The medical editor naturally must be a student of medical affairs. His studies should be almost wholly objective, he should carefully examine every proposal—no matter how fallacious or fantastic it may seem. There may be some germ of good in it somewhere, and if such is found, that little good—no matter how small—should be conserved for incorporation in editorial policy. Our constant effort is to bring comprehension of better methods and technics to the profession so that the public welfare is better served.

"The editor is the paramount factor in bring-

ing the general public and the medical profession into close copartnership in the endeavor to maintain high standards of medical practice and a high level of public health. Organized medicine needs no subterfuge in exchanging views with the public or in telling the public its stand on current moot questions. The public, represented by its general newspapers and government agencies concerned with public health, is bound to listen to organized medicine speaking in the name of its 115,000 physicians, through our American Medical Association's journal and our state journals. If we, as editors, thoroughly understand our jobs and conscientiously perform our duties, mutual confidence will soon become the established order. Organized medicine needs no camouflaged pressure group to lead its fights toward better medicine and higher grades of medical care, nor even to popularize the development of its technics for delivering medical care to the indigent and the near-indigent, who are separated from receiving such care by financial barriers. Organized medicine, free and unafraid and 'in the open,' can advocate its own considered judgments on such questions.

"But—organized medicine must clearly define its medical policy. No body of men, however expert as publicists, can sell "nebulae." We may be told that a nebula consists of an aggregation of exceedingly bright stars, but it takes an expert astronomer and a strong telescope to see even one. You cannot beat a horse with no horse. Our national health policy must be stated plainly, our goal must be set so clearly that all who run may read. It must be broad enough to cover the general medical needs of the whole country and flexible enough to fit every conceivable local situation. This, of course, is in the hands of the policy-forming groups in our organization, and I am sure that they are endeavoring to accomplish their designated tasks.

"The program handed in this morning, consisting of the adopted policy of the Board of Trustees of the American Medical Association, announcing its affirmative platform of what the American Medical Association desires in a National Health Policy, is a fine first step in this direction. I look upon this American Medical Association program as an excellent first beginning, a basic formula of a national health policy which, under the leadership of the policy-making group of the American Medical Association, will develop further. I have trust that eventually this adopted policy of ours will find fruition in legislative enactments putting it into force. Then our state organizations can begin to strive for action under these general principles.

'We, as editors, however need this definitely outlined policy as the framework within which lies our field of endeavor. Our efforts henceforth should be to popularize it and let everyone know our stand.

'There should be a paralleling activity on the part of all editors of state medical journals. I am not implying that the editorial impetus along a given line shall come from a central source. But have we not all exactly similar aims? Are not the goals of our endeavors the same? This is true, whether we are editors of the journal in Maine, or in California Texas or Illinois. I would that it were possible for each of us to have a preview of what our confreres and colleagues intend to publish so that each of us might be able to parallel the other. Progress most rapidly follows an intelligent objective discussion and differences of opinion honestly held but dispassionately expressed. Among us every proposition is debatable, within the realm of good taste

and the necessary observances of the decencies.

Knowing the policies adopted by organized medicine to meet the changing needs of our times, and having foreknowledge of the thoughts of our editorial colleagues in the constituent medical journals, I feel that we will be better able to serve organized medicine, and more properly fill the role which it is intended that we shall play in the integration of our joint editorial policies—namely to express the official opinion of organized medicine. All this to the end that American medicine shall better serve our people.'

Discussion of this address and of the other presentations will appear in due course in the *Journal of the American Medical Association*

PETER IRVING M. D., *Secretary*

Medical Society of the State of New York

## Medical Expense Insurance

FROM different regions in New York State, western central and southeastern, has come news of the recent actual launching with the aid and cooperation of County Medical Societies, of three organizations incorporated for the purpose of supplying cash indemnity insurance for medical expense on a nonprofit and voluntary basis. All have been given approval for incorporation by the State Department of Social Welfare as provided by Article IX-C of the recently amended insurance laws of the State. These are

### WESTERN NEW YORK PLAN INC

Hotel Statler Room 1810, Buffalo N Y

Individuals, families, and physicians are concerned who are resident in the eight western counties Allegany Cattaraugus, Chautauqua, Erie, Genesee Niagara Orleans and Wyoming

### MEDICAL AND SURGICAL CARE INC

252 East Genesee Street Utica, N Y

For those resident in the eleven central counties Chenango Clinton, Essex, Franklin Fulton, Herkimer Lewis Madison, Montgomery Oneida, and St Lawrence

### MEDICAL EXPENSE FUND OF NEW YORK, INC.

122—70th Street Brooklyn N Y

For those resident in the seventeen southern counties Bronx, Columbia, Delaware, Dutchess, Greene Kings, Nassau New York, Orange Putnam Queens Richmond Rockland Suffolk Sullivan, Ulster and Westchester

Officials of these organizations expect them to begin operation very soon. When certain details have been finally arranged invitations will be issued to physicians and to groups of those gainfully employed to take part.

Those concerned in the promulgation of these companies or plans seem unanimous in the belief that in this way the cost of catastrophic illness in particular may be so spread as to aid the lower income class to maintain independence in meeting its medical expense obligations while still employing its own individually chosen physicians. Thus, it is said the values of private practice may be preserved for the public and its physicians without resort to what is now being called political medicine.

The details of procedure of these plans, while similar in some regards differ in others. All call for an agreement between the organization and the physicians who are willing to be listed. All set a yearly limit to the amount payable for various types of service. All provide for a contract with the policyholder. Premiums differ.

As a protection against unreasonable usage subscribers are required to pay the cost of the first visit or two measured generally at \$10 in any illness. In all the plans physicians play a large part in the direction of the work and arrangements have been made for the scrutiny by physicians of bills as to their propriety. A definite tendency to recognize different income levels of subscribers has been evidenced the policy in each level to call for corresponding higher or lower premiums with suitable maximum figures in each case.

These companies will announce in detail the various conditions under which the work will be carried out before the public and physicians are

invited to enroll. The Council of the Medical Society of the State of New York, it has been announced, has gone on record as "recognizing with satisfaction the creation" of these three organizations for nonprofit medical expense indemnity insurance. It has appointed a sub-committee of its Committee on Public Relations and Economics as a fact-finding body ready to advise with County Societies and with such

organizations on procedure as experience is gained. The personnel of that committee is Dr Herbert H. Bauckus, Buffalo, Chairman, Dr William Hale, Utica, and Dr Walter T. Dannreuther, New York.

There are many minor problems the solution of which it is commonly believed will require actual experience in order to arrive at the soundest possible method.

## New Treatment of War Wounds

**J**UST now anything authoritative on the treatment of war wounds and air-raid casualties, especially if based on actual experience of modern warfare, deserves the closest attention of the medical profession. One such recent contribution,<sup>1</sup> reviewed in the *British Medical Journal*, presents the results of a unique experience in the treatment of wounds at the base hospital in Barcelona during the Spanish War.

Practically all the wounds, which were the result of air attack, were infected, and many of the injuries were of the gravest type, involving severe lacerations and comminuted fractures. They were all treated in the same way—namely, by surgical excision of the wound followed by encasement in closed plaster—and the results described are far superior to those claimed for any other method.

Such a method, contrasting so sharply with all accepted surgical principles, requires the strongest possible credentials, and these are supplied, not only in a foreword to this volume by Professor Hey Groves from his own observations, but from the photographic records which accompany the cases recorded. That these results are not merely a happy accident is shown by the fact that out of 1,073 cases of open fractures of the limb there were only six deaths. Since in a large number of these cases the average surgeon would have adopted immediate amputation the results can only be described as extraordinary.

The first procedures—namely, thorough cleansing of the wound with the excision of all contused tissues, removal of foreign bodies and loose bone fragments, and provision of adequate drainage—need no comment, but to encase the whole limb in a closed plaster cast after merely packing a little gauze into the cavity demands

considerable courage. The plaster rapidly becomes soaked in blood and exudate, and as no provision is made for drainage or dressing, the stench becomes horrible, so that "it is impossible to keep the patient for more than ten or fifteen days near others in a ward." It might be supposed that the patient would hardly survive such a time, but this is not the case, and when the plaster, having reached an entirely intolerable condition, is changed for another, the general condition of the patient is greatly improved and the wound is obviously healing.

That such results should have been obtained during the heat of a Spanish summer is astounding. On arrival at hospital, patients were first received by a team whose sole duty it was to undress them and store their clothing and portable valuables. Complete removal of clothing was essential, for although the external wounds produced by light bombs were very small and often painless, the internal damage was often so great that only immediate surgical operation could save life or limb. Since, fortunately, we in this country have not as yet had experience of the nature of the wounds which result from aerial bombardment—that is, from explosion, blast, fallen masonry, etc.—it may be timely to quote what this author has to say: "Wounds produced by aerial bombs and fallen masonry, unlike many bullet and shrapnel wounds, *must* be treated without delay. The three factors essential to reducing the toll of aerial bombardment are rapid direct transport to the centre where immediate surgical treatment is possible, the application of plaster casts, and the early evacuation of treated cases to a base hospital."

Professor Trueta gives detailed descriptions of the application of his method to wounds in every region—shoulder, forearm, femur, etc.—and so good is the case he has made out that the method deserves to be tried out fully. Should it prove as successful as in Spain it will solve many problems. If we could equal his figures and reduce the mortality from open fractures to 0.6 per cent, concludes the *British Medical Journal*, the whole treatment of war injuries will have been revolutionized.

<sup>1</sup> Treatment of War Wounds and Fractures, with Special Reference to the Closed Method as Used in the War in Spain. By J. Prueta, M.D. (Pp. 143, 48 illus., 8s 6d. net.) London: Hamish Hamilton Medical Books, 1939.

## The New Cancer Control Program

**T**he State Department of Health is reorganizing its cancer control program with the primary purpose of amplifying the resources available to practicing physicians throughout the state for the diagnosis and care of the disease, according to *Health News* published by the Department.

Public and professional education will be expanded under the new program. The Division of Cancer Control of which Dr. Louis C. Kress has been appointed director and Dr. Morton L. Levin, assistant director, will continue the popular education designed to reduce the period of delay between the appearance of the first signs of the disease and the time the patient seeks medical advice. Special effort will be made to administer this educational program through practicing physicians in various localities. The entire resources of the Division together with those of the Division of Public Health Education, will be placed at the disposal of physicians to assist them in keeping abreast of recent advances in cancer control and to promote postgraduate education in this highly complex field.

The State Institute for the Study of Malignant Diseases at Buffalo, with its improved facilities, will continue to care for patients to whom diagnosis or treatment is not available locally and to examine specimens for diagnosis in cases of suspected malignancy. It will serve also as a center for research into the cause, methods of prevention, and treatment of cancer.

### Another Major Feature

Another major feature of the general program will be the promotion of tumor clinics in association with existing hospitals. It is expected that tumor clinics organized in association with the Division of Cancer Control will function as teaching centers as well as diagnostic and thera-

peutic centers for cancer and allied diseases. The aid to be given these clinics may vary with local needs but experience indicates that in most localities the services of qualified cancer consultants to act in an advisory capacity is the form of aid most often desired and requested.

The reporting of cancer by physicians, hospitals and pathologic laboratories will aid greatly in the planning and integration of the cancer program. Report forms are being devised that will call for a minimum of information of the kind that every physician usually has in his office records. In order to allow ample time for organization of the required personnel it is thought wise not to ask physicians to report their cases until January 1 1940. Prior to that date, complete information in regard to reporting will be sent to them by letter.

### A Strong Advisory Committee

A cancer advisory committee has been appointed by the State Commissioner of Health to assist the Division of Cancer Control in outlining policies and to make available the benefit of their specialized knowledge and broad experience in various phases of clinical and laboratory cancer. The committee consists of Dr. J. S. Cunningham, dean, Albany Medical College, Albany; Dr. James Ewing, director, Memorial Hospital, New York City; Dr. Thomas P. Farmer, chairman, Council Committee on Public Health and Education, Medical Society of the State of New York, Syracuse; Dr. J. J. Morton, surgeon-in-chief, Strong Memorial Hospital, Rochester; and Dr. Francis Carter Wood, professor of cancer research, Columbia University, New York City.

It is believed that by full cooperation in this program the medical profession of the state may assume a leading place in the control of cancer.

## County News

### Albany County

A plaque commemorating the medical and philanthropic work of the late Dr. Albert Vander Veer and designed by David Lithgow, Albany artist, was unveiled in the main library of the Albany Hospital on October 6.

Dr. Vander Veer was a former president of the Albany County and State Medical societies and an officer in numerous other medical bodies.

### Bronx County

Dr. George Farragut Raynor, president for fifteen years, until his retirement in 1935 of the medical board of the Metropolitan Hospital on Welfare Island, died on November 1 at the Flower Hill Hospital after an illness of two months. He was 68 years old and lived at 249 East 178th Street, the Bronx.

Dr. Raynor was associate professor of medicine at the Homeopathic College and a former president of the New York State Homeopathic Medical Society.

### Dutchess County

The Dutchess County Medical Society met on November 8 in Poughkeepsie, and heard an address by Dr. Jesse Godfrey M. Bullowa on "The Appropriate Treatment of the Pneumonias,

Serum & Drug Therapy —Reported by H. P. Carpenter M.D. Secretary

### Herkimer County

The annual meeting of the Herkimer County Medical Society and election of officers will be held at the Mohawk Valley Club at Little Falls on December 12. The Welfare Committee will report on the proposed change in fee schedule. At the meeting on October 10 it was voted to support the medical insurance plan of the Oneida County Society.

### Kings County

The December stated meeting of the Medical Society of the County of Kings and Academy of Medicine of Brooklyn will be held on Tuesday evening, December 19 at 8:45 P.M.

A new treatment of allergies, under which sufferers from migraine, hives, asthma, and angioneurotic edema remain on their regular diets, was outlined before the South Brooklyn Medical Society by Dr. August A. Thomen, formerly of the New York University Medical School on October 19.

Dr. Patrick Chalmers Jameson, Brooklyn ophthalmologist, died on October 27 in Long Is-



land College Hospital after a long illness. Dr. Jameson, who was 72 years old, lived at 139 Montague Street, Brooklyn.

Dr. Jameson, who was senior surgeon of the Brooklyn Eye and Ear Hospital and secretary of its board of directors, was chiefly responsible for the hospital's new building at 29 Greene Avenue, Brooklyn, opened in 1930 in the face of many difficulties. He had practiced in Brooklyn for more than forty-five years.

#### Monroe County

The University of Rochester Medical School's anemia research was praised by Dr. Kenneth R. McAlpin, of New York, in the concluding postgraduate lecture of the Monroe County Medical Society at the Rochester Academy of Medicine on October 30.

Dr. McAlpin, anemia authority on the staff of New York Presbyterian Hospital, said "Per-nicious anemia is a misnomer, as the disease now responds splendidly to liver therapy, a result largely due to the initial research done at the medical school here under direction of Dr. George H. Whipple, dean."

In the first of a series of monthly public meetings on October 29 at the academy, Dr. William S. McCann, professor of medicine, University of Rochester School of Medicine, declared the individual practice of preventive medicine "must exist side by side with public health administration, coordinated but not regimented by it."

#### Montgomery County

The fourth and fifth lectures of the postgraduate course on organic neurology before the Medical Society of the County of Montgomery were given on October 17 and 24 at the Elks Club by Dr. Wardner D. Ayer, of Syracuse University.

#### New York County

Dr. Daniel F. Crowley, of the Bureau of Social Hygiene of the New York City Health Department, spoke on October 21 at the second of a series of lectures for physicians on the control of venereal diseases held in the Health Department Building, 125 Worth Street. Dr. Crowley said that last year the serologic laboratory of the Health Department reported the results of more than 500,000 blood tests to physicians, clinics, and hospitals, and that this year the laboratory would make about 100,000 more.

"Five thousand physicians in New York City are availing themselves of this Health Department service for their patients," said Dr. Crowley, "as compared with about 100 when the service was begun in 1930, in which year the laboratory performed 20,000 tests."

The Alumni Association of the New York University College of Medicine announces the election of the following officers for 1939-1940: president, Dr. James W. Smith, vice-president, Dr. L. B. MacKenzie, secretary, Dr. Phineas Bernstein, committee on science and education, Dr. Elaine Ralli, Dr. Samuel Standard, and Dr. Norman H. Joffe.

Dr. Francis Washington Sovak, authority on gynecology and obstetrics and member of the Nobel Prize Committee for Medicine in 1935, died on October 27 after a short illness. He was 54 years old, lived at 910 Park Avenue, and

maintained offices at 755 Park Avenue, in New York City.

Dr. Otto Rank, internationally known psychologist and writer, who had been associated for twenty years with the late Dr. Sigmund Freud and who later radically differed with the founder of psychoanalysis, died on October 31 of a streptococcal infection at the New York Polyclinic Hospital after a brief illness.

#### Oneida County

Cancer control was discussed by six Oneida County physicians in a program on October 26 in the New Century Auditorium in Utica arranged by the Oneida County Medical Society and the Oneida County Home Bureau.

Dr. Louis C. Kress, director of cancer control for the State Health Department, was the principal speaker. Dr. G. M. Fisher, county chairman for the cancer control committee, presided.

The other speakers were Dr. Paul Gregory, of Rome, president of the Oneida County Medical Society, Dr. J. L. Golly, of Rome, president of the Utica Academy of Medicine, and Dr. Hyzer W. Jones, Dr. William Hale, Jr., and Dr. F. M. Miller, Sr., of Utica.

Dr. Henry Marbel, of Boston, told members of the Utica Academy of Medicine on October 19 that industrial medicine, operative through the Workmen's Compensation Law, had introduced a factor of great scientific importance to medical practice.

Dr. Marbel was guest speaker at the first meeting of the season of the academy, discussing "Compensation Insurance and Its Relation to the Patient, the Doctor and the Insurance Company."

#### Onondaga County

Dr. E. N. Boudreau spoke on "The Medical and Social Challenge of Alcoholism," and Dr. Wardner D. Ayer opened discussion of the subject at the regular scientific session of the Onondaga County Medical Society on November 7 at the Syracuse University College of Medicine.

New officers of the society were nominated and action was taken on applications for membership. A case report was given by Dr. R. C. Schwartz.

#### Queens County

Dr. John B. D'Albora addressed the Medical Society of the County of Queens on November 3 on "Peptic Ulcer."

#### Saratoga County

The annual meeting of the Saratoga County Medical Society was held at the Metropolitan Life Insurance Sanatorium at Mount McGregor on October 25.

At the afternoon session, a paper on "Syphilis in the Young Adult" was given by Dr. Webster M. Moriarta, county consultant in venereal diseases.

The postgraduate course, conducted by the society every Wednesday in November, welcomed as its initial speaker Dr. Louis Conner, of New York City. His subject was "Degenerative Forms of Heart Disease, Hypertension and Arteriosclerosis."

All sessions of the course except the first were on Wednesday afternoons at the Saratoga Hospital. The society invited upward of 250 physicians in the surrounding counties to participate. Each session was given over to a talk by an outstanding man in the profession, one who had conducted considerable research and was of exceptional ability.

At the conclusion of the annual meeting on October 25 the society members were guests of the Metropolitan and Dr William H Ordway at dinner at 8 00 P.M.

#### Schenectady County

The regular meeting of the Schenectady County Medical Society was held on November 7 in the library of the Ellis Hospital.

The scientific program was Roentgenologic Skeletal Changes in the Diseases of Infants and Children, by Dr Ralph S Bromer radiologist at the Philadelphia Children's Hospital—*Reported by Joseph H Naumoff, M.D. Secretary*

#### Warren County

The Medical Society of the County of Warren held its annual fall meeting on October 11 in Glens Falls. The following officers were elected for the ensuing year: president Dr H. A. Bartholomew, vice-president Dr H F Carroll and secretary treasurer Dr Roger Mitchell. Dr Morris Maslon was re-elected delegate for a period of two years.

The speaker of the evening was Dr Newell W Philpott, assistant obstetrician and gynecologist of the Royal Victoria Hospital in Montreal—*Reported by Jesse S Parker, M.D. Ex-Secretary*

Dr Russell L Cecil, professor of clinical medicine in Cornell University School of Medicine was guest speaker at the first fall meeting of the Glens Falls Academy of Medicine Thursday, October 26 in the Crandall Library. He discussed The Problems of Pneumonia in New York State, with special reference to the use of sulfapyridine.

### Deaths of New York State Physicians

Name	Age	Medical School	Date of Death	Residence
Frederick G Brathwaite	71	P & S N Y	October 30	Manhattan and Stamford Conn.
Avery K. Brodie	67	Buffalo	October 4	Derby
James W Cassell	76	Bellevue	November 4	Manhattan
Ignathus Colletti Reinn	68	Palermo	October 29	Manhattan
Benjamin B Eickner	46	P & S N Y	November 6	Manhattan
Livingston Farrand	72	P & S. N Y	November 8	Brewster
Karl Fischel	62	Vienna	October 29	Saranac Lake
Theodore G Gaskins	35	Virginia	October 30	Mt. Vernon
Nicholas T Grace	33	L I C. Med	November 9	Brooklyn
P Chalmers Jameson	72	L I C Hosp	October 27	Brooklyn
James B. Mansfield	69	Dartmouth	In July	Oswego
John H. Martin	86	N Y U	October 4	Binghamton
H. Leo Moskowitz	50	U & Bell.	October 31	Manhattan
Alice Z Patterson Murphy	64	Boston	August 21	Flushing
George F Raynor	68	N Y Hom	November 1	Bronx
Max J Schwerd	76	P & S N Y	November 8	Great Kills and Prince Bay
Frank Shapiro	53	L. I C. Hosp	October 27	Bronx
Francis W Sovak	54	U & Bell.	October 27	Manhattan
Frank J Weigand	60	L I C. Hosp	October 29	Richmond Hill

Knowledge that drops into one's lap like a ripe apple seldom arouses enthusiasm or zest. The discovery of new knowledge however trivial, thrills. Most of the science we learn today represents the accumulation of discoveries painstakingly explored by pioneers. In accepting it we seldom give thought to the laborious searchings, the discouraging pursuits of blind trails, the disdain even persecution suffered by those

who announced the discovery of facts that were contrary to traditional belief. Yet, each scout of science who helped blaze the trail made it easier for the next explorer. Some left no landmarks. Others established temporary stations, long since forgotten. A few built bridges of theory that enabled other explorers to reach new facts.

—H E. Kleinschmidt, M.D.

# The Woman's Auxiliary

## To the Medical Society of the State of New York

FOR every county medical society in New York State an auxiliary! A startling fact to be able to publish. At the present writing, however, it is mere fiction, although a dream and a goal toward which we strive. This year, already, the Auxiliary has been strengthened by the addition of five new counties. Surely there are others interested, and we hope to have the pleasure of welcoming them soon to the state organization.

Mrs Bullard, our capable chairman of organization, will be glad to visit any county medical society or meet with any group from the society to give information concerning the Auxiliary or to organize an auxiliary for the county. Any medical society may have this service free from expense or obligation. Write to Mrs Thomas C Bullard, 103 Church Street, Schuylerville, New York, for full information concerning the organization of an auxiliary in your county.

## County News

### Kings County

At the regular November meeting of the Woman's Auxiliary to the Medical Society of the County of Kings, Miss Caroline Hood, of Rockefeller Center, gave an interesting illustrated lecture, "Life Behind the Scenes at the Center." Mrs Adolf Fardelmann gave a book report on *Next to Valor* by John Jennings. The meeting closed with a social hour.

### Nassau County

The Woman's Auxiliary to the Medical Society of Nassau County held the October meeting in conjunction with the Nassau County Cancer Control Committee Luncheon at the Garden City Hotel preceded the meeting. On the committee with our president, Mrs Luther Kice, were Mrs Walter Loebmann, Nassau County representative of the Federation of Women's Clubs, Mrs T G Armstrong, president of the Nassau County Public Health Nursing Council, Mrs Franklin S Coons, president of Nassau-Suffolk Mother's Center, Mrs Nathaniel Robin, chairman of the Public Health Committee of Nassau County Auxiliary, Mrs Henry P Davison, one of the founders of Nassau County Cancer Committee, and Dr Shealy, head of the National Institute of Cancer in Washington.

The speakers at the luncheon meeting were Dr Arthur Martin, former chairman of Nassau County Cancer Committee, Dr Earle G Brown, the capable Health Commissioner of Nassau County, and Dr John M Swan, secretary of the New York State Committee on Cancer Control, and chairman of the Cancer Committee of the State Lion's Club.

About 150 women from Nassau County attended the afternoon meeting. Dr Richard Derby, chairman of the Nassau County Cancer Committee, introduced the speakers. Dr Louis C Kress, director of the Division of Cancer Control of the New York State Department of Health, who showed lantern slides, and Dr Norman Treves, consultant at Meadow Brook Tumor Clinic, who talked on cancer of the breast.

In addition to the speaking, a *March of Time* film on cancer control was shown.

The November meeting was held with the second district branch of the Medical Society at Garden City Hotel. Dr Joseph Lawrence, executive officer of the Medical Society of New York State, was the guest speaker. Four counties were represented: Nassau, Queens, Kings, and Suffolk.

### Onondaga County

At the November meeting of the Woman's Auxiliary to the Onondaga County Medical Society, Miss Ellen Buell spoke on "Public Health Nursing." After the meeting a social hour was enjoyed.

### Oswego County

The annual dinner-meeting of the Woman's Auxiliary to the Medical Society of the County of Oswego was held in October at the Hotel Pontiac. The following officers were elected: Mrs John L H Mason, president, Mrs F E Fox and Mrs F L Carroll, vice-presidents, Mrs W McD Halsey, treasurer, Mrs Anthony J Cincotta, assistant treasurer, Mrs Harold J Latulip, recording secretary, Mrs A B Thompson, corresponding secretary, and Mrs Harold F McGovern, assistant corresponding secretary.

Plans were made for the year's work, which will include continuation of a campaign against syphilis and for immunization against diphtheria for school children.

Members of the auxiliary joined the members of the medical society to hear the after-dinner talks given by Dr Eldridge H Campbell, professor of surgery in Johns Hopkins University and Dr Stanley Alderson, assistant surgeon in Albany City Hospital.

### Schenectady County

At the October meeting of the Woman's Auxiliary to the Schenectady County Medical Society, Sergeant Russell of the State Police spoke on "Finger Printing and Its Relation to Crime." A social hour was enjoyed after the meeting. Early in November a bridge-luncheon was held at Newman's Lake House, Saratoga Lake, the proceeds from which were contributed to the Physicians' Home.

# Medicolegal

LORENZ J. BROSNAN, ESQ.

Counsel, Medical Society of the State of New York

## Malpractice—Plaintiff's Burden of Proof

A CASE decided a few months ago in one of the midwestern states shows the rigid rule of proof required to establish a cause of action against a physician in a certain type of case namely when an unusual result follows treatment properly administered.\*

The plaintiff in the case was one C, an elderly woman who was afflicted with an incipient cataract of her right eye. She came for treatment to a clinic conducted by certain physicians and there she was treated by a Dr. W. associated with the clinic as an eye specialist. The treatment administered included the injection under the conjunctiva of the affected eye of 5 drops of a solution of oxycyanide of mercury. It appears that the solution consisted of a strength of one to ten thousand. The purpose of the injection was to cause an irritation or inflammation of a sort which would cause a stimulation of circulation in the eye in order to arrest the development of the cataract.

A week after the injection an excessive reaction in C's eye was noted by Dr. W. and he treated the condition on various occasions for a period of about two months. She later went to a Dr. B., another eye specialist who diagnosed a condition of chronic inflammation and treated it over an additional period of four months.

The patient instituted a malpractice action against Dr. W. and certain other physicians associated with the clinic to recover damages alleged as a result of claimed improper treatment.

On the trial there was no question raised as to the skill or ability of Dr. W. and there was no evidence to show that the solution used was other than compounded and dispensed properly for the purpose for which it was used. It appeared that the solution was kept in a bottle having a rubber cork through which a hypodermic needle was thrust. The same bottle according to the testimony had been used in connection with injections into the eyes of at least twenty persons but of these persons so treated there seems to have been unusual reactions in the treated eyes of two persons other than the plaintiff.

The plaintiff upon the trial called two medical witnesses, one of whom gave no opinion with respect to the treatment complained of, he not being an eye specialist, and the other of whom was Dr. B. who subsequently treated C. Dr. B.'s testimony included a recital of the care he had rendered. He stated that while in his practice he did not use the methods followed by Dr. W. it was good standard practice among eye specialists to so use oxycyanide of mercury.

Defendant called certain eye specialists as his expert witnesses and they gave as their opinion

that the injection of the solution used was good standard practice of eye specialists." They gave the opinion that a safe dose of the solution used could be up to 15 or 20 drops, three or four times that used in the case in question. Their explanation of the untoward result was that the plaintiff's reaction had either been caused by some focal infection in her body or by her super sensitivity to the drug.

The plaintiff however in addition to the proof of bad results following treatment, introduced proof of an admission alleged to have been made in her presence and in the presence of another woman, by Dr. W. that he had injected too much of the solution. Plaintiff also emphasized the fact that Dr. W. admitted in his testimony that another patient had had a reaction equal to that of plaintiff. On the other hand the defendant Dr. W. denied admitting the administration of too much of the solution.

With the proof substantially as summarized above, the trial Court submitted the case to the jury and a verdict of \$3,000 was rendered in favor of the plaintiff.

The defendants appealed to the Supreme Court of the state contending that the plaintiff had failed to establish her cause of action. That Court reversed the judgment appealed from and ordered a new trial of the case. In so ruling the Appellate Court commented upon the case in part as follows:

Common experience teaches that whether a drug is injected into the tissues or the blood stream, or taken internally, the reaction is not the same in all persons of the same age or apparent same condition, and even as to the same person it varies greatly at times depending upon the physical or mental condition of the patient.

"There are no facts proven in this case from which the jury without the aid of expert medical testimony could find malpractice in the treatment of plaintiff's eye.

Courts rightly scrutinize the evidence in malpractice cases to ascertain whether there is proof sufficiently pointing to negligence or lack of requisite care and skill of the doctor as the cause of the alleged injury so that the basis for the verdict be not a mere conjecture or guess.

Of course, we do not overlook the fact that there is no dispute that the origin or start of the irritation or inflammation which Dr. B. found and which still persisted at the time of the trial came from the injection that Dr. W. made September 9, 1937. But that does not prove or tend to prove negligence for all the experts agree that starting an irritation in the eye to stimulate circulation is the standard practice in the treatment of incipient cataract. What causes the inflammation to persist is unknown to the medical experts. As we read Dr. B.'s testi-

\* *Casidy v. McLaughlin*, 285 N. W. 839.

mony, plaintiff's only eye specialist, he does not venture any opinion that attributes the prolonged persistence of the irritation in plaintiff's right eye to any fault, want of skill, or negligence of defendants or any of them "

### Alleged Improper Administration of Barbiturates

IN JULY, 1935, a young man complaining of general fatigue, depression, and extreme nervousness as a result of financial strain and business reverses consulted his physician, a specialist in internal medicine

An examination by the physician demonstrated that this patient was in good physical condition but was extremely nervous and depressed. The physician suggested that the patient go to a sanitarium for a rest. The patient demurred to this and the physician thereupon gave him a prescription for a sedative with a barbiturate base. A few days after this visit the patient again visited the physician and stated his willingness to go to a metropolitan sanitarium for a rest. The patient was duly admitted to a sanitarium and while there was given substantially the same type of medication as had been previously prescribed for him.

About two days after his admission to the sanitarium, he became so agitated, noisy, and boisterous that the authorities there communicated with the police, who after seeing the patient called for an ambulance which took him to the psychopathic ward at Bellevue. Upon his admission to the psychopathic ward all medication was discontinued. The patient's condition improved and he was discharged about three weeks later. Subsequent to his discharge he again visited the office of his doctor, who again prescribed barbiturate sedatives for him.

His condition from August to December remained about the same and in December at the

suggestion of the doctor he went to a mental institution as a voluntary patient. He remained in the mental institution for approximately six weeks and upon his return again visited the office of his physician. At that time his physician called in a psychiatrist in consultation and arrangements were made to have the patient taken over by the psychiatrist for psychiatric treatment.

Shortly after he changed physicians the patient brought a malpractice action against his doctor. Two charges were made: (1) that the doctor departed from proper practice in prescribing barbiturates to this patient after it had been demonstrated that the reaction of this drug was unfavorable, and (2) that without the patient's consent or permission he was placed in the second-named sanitarium.

The case came on for trial before the Court and jury and in support of his contention that barbiturates affected him deleteriously, he showed that during the time he was in the psychiatric ward at Bellevue no barbiturates of any kind were given and that his condition without these barbiturates had improved. He also showed that subsequent to his discharge from Bellevue he was again under the influence of these drugs and again became excited, irrational, and difficult to handle. These charges were substantiated by the psychiatrist brought in by the doctor. He testified that the barbiturates given were contraindicated in this patient's case and further that they were responsible for the mental aberrations which necessitated his removal to Bellevue.

In the defense of the case testimony was presented to establish that this patient suffered from manic-depressive psychosis, and medical testimony to the effect that this psychosis could not have been caused by the barbiturates prescribed by the defendant.

These issues were thereupon submitted to a jury and after deliberation a verdict was returned in favor of the defendant, thereby exonerating him from these charges.

### COUNTY MEDICAL SOCIETIES AND THE WAGNER BILL

Every one of the two thousand or more of the county medical societies should devote at least one or more of the fall and winter monthly meetings to a joint session of doctors, dentists, druggists, and allied professions together with members of the legal profession and the ministry, says the *Illinois J M*.

At a conference of this kind, problems of common interest can be properly discussed. There is no question but what there is a movement on foot to make all scientific vocations bow to government paternalism. It is time for all the allied interests to get together and formulate plans to prevent regimentation, not only the medical, but all of the professions, it urges.

There is only one answer, so far as the doctors are concerned, to the Wagner bill, and that is "No!" We cannot depend upon the politicians to sponsor our cause in legislative halls. The rank and file will have to make whatever effort is made to head off the attempted regimentation

which is sweeping the country like a cyclone.

The rank and file, which make up the membership of over two thousand component medical societies throughout the nation, seem to feel that the officers of their respective county, state, and national organizations have been elected to do the job of fighting the aggression of bureaucratic control of everything and everybody. This impression is dead wrong and impossible of accomplishments.

No army of generals ever won a battle, declares the *Illinois editor*. It is the soldiers in the ranks who do the actual fighting. The officers of your county, state, and national organizations can provide the ammunition and formulate strategy and certain techniques needed for victory. But the power to win or the lethargy and laziness, which means defeat, rest entirely upon the fortitude and alertness engendered by the personnel that makes up the component county and respective state societies.

# Hospital News

## London Hospitals in War Time

THE great teaching hospitals of London have adapted themselves to the war crisis with a speed and genius for improvisation that amazes everyone, but as the *British Medical Journal* says, it is really the outcome of long forethought and planning. At the very outbreak of the war enough patients were moved to outside hospitals or to their homes to provide 200 000 beds ready for civilian air raid victims, and this number is being steadily maintained.

First-aid posts, both fixed and mobile, have been established and equipped. The emergency ambulances have been assembled and fitted up. Motor coaches in the provinces as well as in London have been converted for use as inter hospital ambulances. The full complement of casualty evacuation trains for civilian cases has been assembled and staffed and provided with medical equipment. Some shortage of extra beds, bedding, dressings, and surgical equipment has been reported from a number of places, but is being met as rapidly as possible by accelerating the delivery of goods on order by the diversion of supplies from places more favorably situated and by placing fresh orders. In particular surgical instruments are being delivered in considerable numbers and others obtained on loan from hospitals and surgeons having a surplus available.

### Note of Quiet Preparedness

Everywhere the note of quiet preparedness is struck, we are told. The buildings of the hospitals are in some cases modern, and even as at the new Westminster influenced by war experience and anticipations but more often they are old and rambling and there is all the more credit to those concerned that they should have been made as proof against air warfare as steel girders and sandbagging and other measures can make them. Earlier in the present year the Ministry of Health issued a memorandum on structural and other modifications against air raid risks in hospitals, and the advice given has proved most valuable.

But apart from structural alterations, the new demands have meant an upheaval and dispersion enough to wring the heart of any hospital administrator. From the London Hospital, for example, it seems, equipment to the value of £40 000 has been transferred to the hospitals in the two sectors which radiate from it. The staff has also been split up and 450 nurses have gone from the hospital to other institutions.

Very generally the in town hospitals have come downstairs' and basements and semi basements which were formerly disregarded have been found to have a considerable use and now house the principal departments of the hospital. Here a degree of safety is afforded which enables the work of the hospital to proceed if not in peace at all events in quietness.

At St. Bartholomew's the former x ray rooms and cardiographic room which were in the semi basement, also the canteen and the hospital printing department have been converted into theaters for major and minor operations preparation and service rooms, stores for medical and

surgical supplies, and small emergency wards. In one part of the grounds entirely below the surface, the ear nose, and throat operating theater has been reconstructed.

A labyrinth of vaults under the anatomic department has been cleared, reinforced and made into shelters. One interesting construction at St. Bartholomew's is a special one way ambulance road together with a ramp for walking or stretcher cases to facilitate speed in reception. At Guy's there are two emergency operating theaters in the basement, heavily protected and air-conditioned. Charing Cross has two operating theaters on the ground floor.

### Day and Night Shifts

The medical staff at St. Bartholomew's is working in three eight hour shifts, the nurses in twelve hour shifts. There are three teams of physicians surgeons qualified assistants and student assistants with A.R.P. (Air Raid Precaution) workers and ambulance men standing by. Guy's also has a triplicate arrangement—one staff on duty one on call and the third off duty.

On an air raid warning being given, the staff on duty go straight to their prearranged posts the staff on call take what shelter they can in the hospital precincts and the staff off duty are not required to go to the hospital. Guy's has its own decontamination squad but it is only prepared to deal with both gassed and wounded. As a casualty receiving station it deals in an air raid with ambulance and stretcher cases, no walking wounded being admitted for these there is available on or near the premises the first aid station of the local authority. Guy's is making no distinction between ordinary sick and casualties—that is to say if sick require admission they are taken in but they are evacuated as soon as possible to the outer hospitals. At present the accommodation is 135 beds for the ordinary sick—only about one third of these are occupied at the moment—and 200 for casualties.

This is not the time remarks the *British Medical Journal* to add up the bill of costs which this immense hospital change-over has entailed. The house governor of one hospital reports that £8 000 has been spent on emergency theaters, emergency lighting and darkening and other such work and that, of course, is only one relatively small item. The tremendous interruption of ordinary hospital work has been a disheartening matter but everyone seems to have risen to an unprecedented occasion efficiency and good humor everywhere obtain and above all, a sense of readiness for any demand that the times may bring.

### Newsy Notes

#### "Frozen Sleep" for Cancer

"Hibernation" is another name used for the cancer treatment being given to several patients in the Lenox Hill Hospital New York City. As described in the *New York newspapers*, from an

announcement by Superintendent John H. Hayes, the treatment originated and developed at Temple University in Philadelphia, will be studied for at least two years at Lenox Hill.

The superintendent said that a special "hibernation" room, insulated from the rest of the hospital, has been constructed and equipped. The funds have been provided by an anonymous woman, the Amidon Fund of the hospital, and the Metropolitan Life Insurance Company. A committee representing the different medical specialties will contribute its time and service during the investigation to survey the scope, possibilities, and limitations of the method. Its members will select the patients and conduct the investigation.

The method was devised by Dr. Temple Fay and Dr. Lawrence W. Smith, of Temple University. The treatment induces in the patient a condition akin to the hibernation of animals.

Results observed in Philadelphia and elsewhere indicate that some patients have been given considerable relief from pain, but physicians agree that at least another five years of investigation must be made before the treatment's value can be estimated. During the treatment the patient actually simulates a hibernating animal.

In the general method of cooling, the patient is first put to sleep with sedatives while still in his ward. While unconscious, he is moved to the special air-conditioned room for the rest of the treatment. For a brief time his temperature is reduced from normal, 98.6 F., to 91 F. by packing the body—but not the extremities—in ice. When the patient's temperature reaches 91 F. the ice is removed. Experience shows that the patient's temperature will continue to drop for a while until it reaches 88 F. or 89 F. It generally takes a patient about five hours to "emerge," or come back to normal.

Treatments and observations of the Lenox Hill patients will last from one and one-half to five days. The first treatment will be for thirty-six hours in the air-conditioned room, following which the patient will be returned to his ward for observation. After two or three days he will go back to the refrigeration room for a second treatment, this one for seventy-two hours. The third treatment covers a period of from ninety-six hours to five or more days.

The Lenox Hill refrigeration room will be kept at a temperature of 58 to 65 degrees. Every possible safeguard will be taken in the care of the patients. Nurses, assigned to the special room in four-hour shifts throughout the day, will keep constant records of each patient's temperature, pulse, and respiration.

Lenox Hill patients, chosen from a long list of applicants, will be treated two at a time. The hospital, while assured of at least two years' work, hopes that the investigation can be carried on for the full five-year period necessary.

### Striking Rise of Hospital Standards

Hospitals all around the state are being congratulated on their inclusion in the new list approved by the American College of Surgeons. A number are in for the first time, and appear among the 2,720 thus honored in the United States and Canada, as announced at the twenty-second annual Hospitalization Standardization

Conference in Philadelphia in October by Dr. George Crile, of Cleveland, chairman of the Board of Regents of the College. Dr. Crile, in making the announcement, said:

"On the first List of Approved Hospitals of the American College of Surgeons twenty-two years ago, the names of only eighty-nine hospitals appeared. The balance of the approved hospitals have in that relatively short interval earned a right to appear and to be retained on the Approved List.

"Even those originally approved which still appear on the list have had to strive for betterment in order to meet enlarged conceptions of the Minimum Standard requirements in the light of mechanical and scientific progress.

"Behind the statistics has been a powerful impulse to improvement engendered by hospital standardization and this impulse has been shared by a great many hospitals that have not yet won approval. They are working zealously to overcome difficulties, and they will succeed in doing so if the public gives them the support that it should in view of the benefits that it will derive.

"One out of every fourteen persons in a community, on the average, is a patient in a hospital each year. Does it not therefore behoove the public to encourage adequate care of these patients, and also to cooperate with the hospital in health conservation efforts?

"Medical science, solicitous for the welfare of the patient, has set a high standard of approval for hospital service, equally solicitous, and demanding equally high standards, should be every enlightened community."

### Bellevue's "Flying Squad" Tries Its Wings

The organization of an "emergency flying squad" at Bellevue Hospital, New York City, was recently described in these pages. It had its first tryout on October 10. Its principal vehicle was an old bus, which had last seen service carting children between clinics, fitted as a hospital on wheels. Shelves and boxes were loaded with every possible medical supply, instruments, and equipment for emergency work in any disaster the doctors could conceive.

Some drugs were too valuable or dangerous to be left in the bus between emergencies, so certain members of the unit were assigned the duty of placing these medicines in their proper places at the emergency signal.

Dr. Cutola divided the interns and nurses assigned to the unit into two major groups—one, commanded by Dr. Frank Nobiletto, to deal with victims suffering bone injuries, and the other, commanded by Dr. Sidney Lyons, to handle the medical cases.

Then the unit drilled. Day after day they rehearsed exactly what each member was to do in case of an emergency until, as one said, "We even dreamed about it."

And on October 10 the unit had to go through its paces in earnest.

At 11:35 A. M., the hospital was notified that many were injured in an explosion at 23rd St. and Lexington Ave.

The word was flashed to Dr. Cutola. And the telephone operator, drilled in her role as much as any member of the unit, began telephoning the wards in prearranged order.

### "Take stations for emergency call"

Within eight minutes the unit was speeding to the scene—30 interns and all nurses in the bus and five ambulances and seven more interns in Dr Cutola's.

Dr William F Jacobs, medical superintendent of the hospital, took two additional nurses to the scene in his car. He went to help but also to watch critically the functioning of Dr Cutola's unit.

The moment the unit reached the scene, each intern, nurse and driver sprang to the task as signed in drill—some getting out supplies, some setting up a field hospital in the basement of the Gramercy Park Theater, some bringing in the injured, some taking stations in case there was another blast.

And just an hour later, with all of the injured on the way to hospitals, the members of the unit stopped to catch their breath. All were ordered back to the hospital except four or five who remained at the scene with a single ambulance in case more injured were found in the debris.

"Well," Dr Jacobs said, "it worked without the slightest hitch or confusion didn't it? I think the results speak for themselves and our rehearsals were productive of fine execution in the stress and excitement."

Which was an opinion expressed in fewer words by a cop who had watched marvelling as the unit worked. He put it this way:

Sonny it was smooth damned smooth.

A committee of sixty women is bending its energies to secure a government loan of \$600,000 to reopen the Memorial Hospital on Jefferson Avenue, Buffalo, closed since February and in the hands of a receiver. The committee reports it has the promised support of fifty-seven physicians. These doctors not only have promised to send patients to the reopened hospital but many have offered financial aid.

The new \$500,000 adult hospital building which is nearing completion at the Niagara Sanatorium on the Upper Mountain road, west of Lockport, has been named the Guillemont Hospital in memory of Dr Frank Guillemont, Niagara Falls former president of the sanatorium board.

## Improvements

Taking cognizance of a report of overcrowding and a need for additional facilities, the Board of Trustees of St. Francis hospital at Poughkeepsie has taken initial steps looking to the erection of a \$125,000 hospital addition.

A committee was named to devise ways and means of raising money and effecting the other steps necessary to the project. The embryonic proposal suggests the addition of a new wing to the Roosevelt building, main hospital structure erected and named in honor of the late J. Roosevelt Roosevelt, a substantial contributor to the hospital.

During a recent visit to Gloversville by Luchas N. Littauer he revealed to officials at Nathan Littauer hospital plans for important improvements to the equipment which will include a new x-ray apparatus, provision for a maternity ward and obstetrics department in the Eugene Littauer Memorial laboratory building and the installation of a deep therapy unit for the treatment of malignant diseases.

In the dedication of the new Department of Radiology at Samaritan Hospital in Troy in October, Dr Robert S. Cunningham, dean of Albany Medical College, said he saw the first step toward establishment of a medical center in the Capital District.

The new wing of the Swedish Hospital, in Brooklyn, was dedicated on October 8. It accommodates 100 beds.

The new \$100,000 three-story north wing of Columbus Hospital, Buffalo, which contains twenty private and semiprivate rooms and new operating rooms and equipment, was opened in October.

Air-conditioned throughout with individual room control, the new wing has a capacity of thirty patients in addition to an enlarged outpatient quarters in the basement.

## THE WOMAN WHO SEES

### International Complications

The Woman met a friend for luncheon the other day in one of those swanky French places where she delights to dine after which she goes on a strict diet. This particular place was new to the Woman but her friend had been there very often and was greeted by name when the portly head waiter caught sight of her.

"Ah, Henri, the friend said as she seated the Woman and herself at a choice table, 'you must be finding the situation in Europe very trying these days. Henri,' she went on to explain

to the Woman, is half French and half Italian.

Henri nodded and sighed deeply and self-pityingly. 'Ah, it is very trying to one like myself who is sensitive,' he agreed mournfully. 'The world is in a bad way, madame. Every body today is selfish. And very often I say to myself if it were not for my two wives—the one in Europe by whom I have had four daughters and the one here in America by whom I have had three sons—I should renounce the world altogether and enter a monastery.'

—New York Times Nov 8



# Books

Books for review should be sent to the Book Review Department at 1313 Bedford Avenue, Brooklyn, N Y. Acknowledgment of receipt will be made in these columns and deemed sufficient notification. Selection for review will be based on merit and the interest to our readers.

## RECEIVED

**Primer of Allergy** A Guidebook for Those Who Must Find Their Way Through the Mazes of this Strange and Tantilizing State By Warren T Vaughan, M D Duodecimo of 140 pages, illustrated St Louis, C V Mosby Co., 1939 Cloth, \$1 50

**Mental Health** Publication of the American Association for the Advancement of Science, No 9 Edited by Forest R Moulton Quarto of 470 pages Lancaster, The Science Press, 1939 Cloth

**Nutrition and Physical Degeneration. A Comparison of Primitive and Modern Diets and Their Effects** By Weston A Price, D D S Octavo of 431 pages, illustrated New York, Paul B Hoeber, Inc, 1939 Cloth, \$5 00

**Experimental Pharmacology and Materia Medica** By Dennis E Jackson, M D Second edition Octavo of 906 pages, illustrated St Louis, C V Mosby Co., 1939 Cloth, \$10

**Fifteenth Anniversary Bulletin of the Russian Medical Society of New York** Quarto of 113 pages, illustrated New York, The Russian Medical Society of New York, 7 East 85th Street, 1939 Paper, \$1 00

**The Newer Knowledge of Nutrition** By E V McCollum, Ph D, Elsa Orent-Keiles, Sc D, and Harry G Day, Sc D Fifth edition Octavo of 701 pages, illustrated New York, The Macmillan Co., 1939 Cloth, \$4 50

**Infections of the Hand** By Lionel R. Fifield, F.R.C.S Second edition by Patrick Clarkson, F.R.C.S Duodecimo of 167 pages, illustrated New York, Paul B Hoeber, Inc., 1939 Cloth, \$3 25

**Treatment of Some Common Diseases (Medical and Surgical)** By Various Authors Edited by T Rowland Hill, M D Octavo of 398 pages, illustrated Baltimore, Williams & Wilkins Co., 1939 Cloth, \$5 00

## REVIEWED

**Pediatric Symptomatology and Differential Diagnosis.** By Sanford Blum, M D Octavo of 500 pages, illustrated Philadelphia, F A Davis Company, 1938 Cloth, \$5 00

This work is merely a compilation of the more common symptoms of diseases related to infancy and childhood with a not too comprehensive differential diagnosis. It is good as far as it goes, but it is doubtful if the material is inclusive enough, certainly not for those specially interested in pediatrics. For general practitioners it will serve a useful purpose as a quick reference for diagnostic purposes.

THURMAN B GIVAN

**Insulin, Its Chemistry and Physiology** By Hans F Jensen, Ph D Octavo of 252 pages New York, The Commonwealth Fund, 1938 Cloth, \$2 00

The author was an associate of the late Dr John J Abel in the chemical researches on insulin at Johns Hopkins University.

His work is without question one of the finest monographs this reviewer has had the pleasure to read. For a physician at all interested in the subject of insulin this excellent work offers more than a postgraduate course.

There are the following seven chapters (1) The History of Insulin, (2) Preparation of Insulin, (3) Preparation and Chemistry of Crystalline Insulin, (4) Standardization of Insulin, (5) Administration of Insulin, (6) Insulin Substitutes, and (7) Physiological Action of Insulin.

One of the outstanding values of this monograph is the unusually extensive bibliography. The 624 references for just the final chapter on the physiologic action of insulin give some idea

of the vast amount of source material upon which the text is based.

Jensen's *Insulin* is highly recommended.

PAUL C ESCHWEILER

**Zur Entdeckung der Insulinschocktherapie bei Akuten Geisteskrankheiten, Insbesondere bei der Schizophrenie** By Dr Julius Schuster Octavo of 90 pages Budapest, Druckerei der Pester Lloyd-Gesellschaft, 1937 Paper, 2 Pengö

The action of insulin in schizophrenia is regarded as "brain anaphylaxis." The author claims to have treated successfully acute mental diseases, especially schizophrenia, with insulin since 1922. He reported his results with this treatment in April, 1926, at a meeting of the Section of Neurology and Psychiatry of the Royal Hungarian Association of Physicians in Budapest. "The insulin therapy is wrongly ascribed to Sakel, the priority of the insulin treatment of psychoses belongs to me."

The 30 case histories, some of them only three to five lines, covering dementia praecox, epilepsy, melancholia, and depressive states, are unsatisfactory as to symptoms, diagnosis, duration of disease, reaction during treatment and duration of remission.

Instead of a clinical report, 75 pages of the publication are a thesis on the chemistry of phosphatides, active substances of the hypophysis, esterases, vitamins and histopathologic investigations of the author, concluding with the chemistry of the genes.

This monograph is of no practical value for the evaluation of insulin shock therapy in schizophrenia.

F A QUADFASSEL

# NEW YORK STATE JOURNAL *of* MEDICINE

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## *Editorial*

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### The American Way

"The best program for medicine should be the product of the best minds of the American people. I propose that it be written by physicians, and when approved by organized medicine that it be submitted to the Congress. I believe that we should try to find an American Way—built upon the sound foundations of American experience."

NATHAN B. VAN ETTEN, M.D.,  
*President elect, American Medical Association*

### The A.M.A. Platform

The public health platform promulgated by the A.M.A. conforms closely to principles enunciated by the Medical Society of the State of New York and its constituent organizations. Its clarity is in sharp contrast to the ambiguities of the Wagner National Health Bill. It decisively refutes the charge that the profession has no constructive medicosocial policy.

It should be news to no one that organized medicine desires complete medical care for all the people—physicians contribute at least a million dollars' worth of free service daily toward this end. The A.M.A. favors Federal aid in the development of adequate health measures, but it desires that such aid be on the strict basis of demonstrated need. It believes that taxpayers' money may rightfully be spent to provide necessary medical care but should not be spent on unproved theoretical needs.

Two principles run side by side throughout the A.M.A. platform—*proved need* and *local responsibility*. The care of the public health and the provision of medical service to the sick are primarily a *local responsibility*. Congress should make funds available for these purposes to any state *in actual need*. In other words, a community should do its utmost to provide necessary services before appealing

to the Federal government for aid. Having done its utmost and demonstrated its eligibility for Federal assistance, it should be permitted to control the expenditure of the monies allotted to it. "

Only persons of the same community, fully familiar with the circumstances, can determine the number of (medical indigents) and

only persons in actual contact with such circumstances are capable of administering suitably and efficiently the medical care that may be required. " Hence, the A M A holds, a mechanism should be developed for the expansion of preventive medicine in each community, and medical care for the indigent and medically indigent should be extended, "with local determination of needs and local control of administration. "

The A M A declares against that irresponsible enthusiasm which would like to scrap everything in the present system of medical care in order to effect a few minor reforms. Since the existing system of private practice in this country has brought about higher standards of service and lower morbidity and mortality rates than any other great nation enjoys, the profession urges the continued development of private practice. This does not preclude certain beneficial changes in the distribution of medical service. Medical societies all over the country have endorsed group hospitalization insurance and are inaugurating nonprofit cash indemnity plans for defraying the costs of medical care.

Just as it insists on the continued development of private medical practice, the A M A would like to see the fullest utilization of existing institutional facilities for the care of the sick. The United States has a higher percentage of hospital beds per thousand than any other country with a comparable population. There are only thirteen counties that have not a hospital within a distance of thirty miles, "and in eight of these there are five persons per square mile. " Many first-rate voluntary hospitals are suffering from a lack of funds which hampers full employment of their facilities. "It seems logical to suggest then" that Federal monies be used to hospitalize the needy sick "in these well-established existing institutions before any attempt is made to indulge in a vast building program. "

From the point of view of administrative efficiency, the A M A urges a reform that is long overdue, namely, the establishment of a single Federal agency which shall coordinate and administer all national health activities except those of the Army and Navy. The present division of Federal health functions among a multiplicity of bureaus is wasteful and inefficient.

To those who see no connection between political philosophy and medical care, the A M A's insistence on an expansion of public health and medical services "consistent with the American system

of democracy ' may seem irrelevant. However, experience in many other countries has shown that state control of medical care, with its implied abandonment of individual responsibility and self reliance, is often a first step away from democracy in the direction of totalitarian government. It has not produced the improvement in physical health expected of it where it has been tried. It is certainly not conducive to better mental or political health. As no less an American than George Washington warned, "He who seeks security through surrender of liberty loses both "

### Misuse of Tax Funds

*Health News*, issued weekly by the New York State Department of Health, was established to publish authentic facts about public health work and to aid in the furtherance of accepted public health measures. It was not intended as a medium for the propagation of the Health Commissioner's personal views or as an instrument for the aggrandizement of the Health Department at the expense of the medical profession. The current campaign for state medicine which is being waged in the columns of *Health News* is a perversion of its intended purpose and a misuse of tax funds.

The offense is aggravated by the fact that the course that *Health News* advocates is as ambiguous as it is controversial. For example, Commissioner Godfrey recommends that "health authorities should have increasing opportunity to acquire experience in the delivery of medical care as rapidly as possible," but he does not state how this experience is to be acquired. Is private practice to be abolished in favor of outright state medicine or state-controlled compulsory health insurance? There are hints of this in the statement that "there is no reason why we should not adapt, develop, and improve any form for the social reorganization of medicine that may be suggested by the experience of other countries" and in the somewhat specious comparison made between free public education and public health. He condemns the "fee-for-service" system also without saying what he would substitute.

Like most propagandists, *Health News* does not display any great regard for the truth. When it says, for example, that "it is hard to understand the present opposition to measures for improving the medical care of the people from those who have taken the Hippocratic Oath," it implies that physicians are opposed to all measures for better public health. This is not the truth and Commissioner Godfrey knows it. The only "measures for improving the medical care of the people" to which the profession is opposed are measures which, tried elsewhere, have failed to produce the promised results.

and which the profession believes to be detrimental to continued medical progress in the long run. The medical profession is absolutely opposed to "*political medicine*"

The educational value of *Health News* at its best is open to question. Giving it the benefit of the doubt on this score, the public may be willing to pay for education but it certainly is not willing to be taxed for propaganda. A publication that engages in a one-sided presentation of a highly controversial issue loses its claims to an educational status and becomes a mere propaganda sheet. The desirability of continuing *Health News* on this basis should be carefully weighed. Misuse of taxpayers' money must be avoided. In the interest of economy which our Governor is desirous of enforcing, the money spent on a propaganda sheet might be saved, and put to better use.

### Why Cults?

The medical profession has, with the aid of the legislative and judicial bodies of the country, bent every effort to protect the public from exploitation at the hands of cultists. Nevertheless, people continue to go to them and in some communities the cultists do a thriving "business." In an illuminating discussion of the factors responsible for this, Knight<sup>1</sup> analyzes the reasons for the attraction of the cults and the role played by the physician in driving the sick to them.

The doctor, in his honesty, realizes his limitations. For the cultist, there are none. Physicians are, all in all, too general in reassuring the patient as to their ability to help him and often fail to relieve his anxiety concerning his illness. Where definite pathology is not discovered, the patient is branded a "neurotic" and his *symptoms*, though they continue, are lightly dismissed. After a series of such experiences with "scientific" medicine, they are ripe for the cultist. He first eases their worries with promises to remove these subjective, psychologic factors which cannot be auscultated, or measured by blood studies or roentgenologic examination. He then makes use of forms of therapy that physicians as a whole look upon somewhat contemptuously. "People like to be rubbed and massaged and they often feel better after such measures are used, but they find it hard to get such soothing procedures prescribed by physicians." So they go to chiropractors, Swedish masseurs, or to spas. The psychiatrist realizes that it is important for the psychologically sick man to tell his story to a sympathetic listener, but the average physician is loathe to hide his lack of interest. "The cultists are super-

<sup>1</sup>Knight R. P. J. Kansas Med. Soc. 40: 285 (1939)

ficially correct in meeting this need for omnipotent magical assurances for cure, in taking all of the patients' complaints seriously and sympathetically "

Knight states correctly that "All treatment measures which meet the needs of the patient, either physiological or psychological, are *ipso facto* scientific in the broadest sense of the term " They properly belong therefore in the realm of scientific medicine We have inadvertently encouraged the cults to exploit them unscientifically, we can eliminate the cults if we reclaim for our scientific use these therapeutic measures, which, in our rapid advance in medical learning, we have discarded as being merely palliatives It is to psychiatry that our thanks must go for showing us that these palliatives are curatives when applied correctly, and that while *objective findings* are of importance to us, *symptoms* are just as important to the patient.

### With Pardonable Pride

*The Quarterly Bulletin* of the Department of Health in the City of New York<sup>1</sup> again brings us the vital statistics of twenty-four of the larger cities in the United States for the year 1938 It is a comparative study of "Friendly Rivalry" in the fight against morbidity and mortality

Public health authorities generally regard the infant mortality rate as a useful index of health conditions The vast improvement that has been noticeable during the past decade is more than gratifying Whereas in 1929 only two of the twenty-four cities had an infant death rate below 50 per 1,000 live births, in 1938 there were 17 In this connection, one wonders why our national capital still has an infant mortality rate of 71 per 1,000 live births, *the same as recorded for 1929!*

Deaths from cardiovascular-renal diseases constitute the largest figure per 100,000 of population, with malignant disease as the next in line New York City is exceeded only by New Orleans in the number of deaths from typhoid fever The dreaded epidemic diseases, such as poliomyelitis, epidemic encephalitis, diphtheria, and scarlet fever, have a negligible mortality figure per 100,000 Pulmonary tuberculosis, syphilis and its sequelae, pneumonia, and appendicitis still remain factors that require intense study The high suicide rate, which exceeds deaths from appendicitis, suggests that perhaps a new field in preventive medicine is in the offing for our public officials in whose hands lie the consideration of taxes, housing, business, and labor

<sup>1</sup>Quarterly Bulletin N. Y. C. Dept. of Health 7: 77 (Nov.) 1939

Taken as a whole, the vital statistics of these larger cities indicate that the health conditions for an urban population of approximately 27,000,000, "were generally good " And, with pardonable pride, *we did it!*

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### Prize Essays

The Merrit H Cash Prize and the Lucien Howe Prize will be open for competition at the next Annual Meeting of the Medical Society of the State of New York, May 6, 1940

The Lucien Howe Prize of \$100 will be presented for the best original contribution on some branch of surgery, preferably ophthalmology The author need not be a member of the Medical Society of the State of New York

The Merrit H Cash Prize of \$100 will be given to the author of the best original essay on some medical or surgical subject Competition is limited to the members of the Medical Society of the State of New York, who at the time of the competition are residents of New York State

The following conditions must be observed

Essays shall be typewritten or printed and the only means of identification of the author shall be a motto or other device. The essay shall be accompanied by a sealed envelope having on the outside the same motto or device and containing the name and address of the writer

If the committee considers that no essay or contribution is worthy of the prize, it will not be awarded

All essays must be presented not later than April 1, 1940, and sent to the Chairman of the Committee on Prize Essays of the Medical Society of the State of New York, 2 East 103rd Street, New York City

EUGENE H POOL, M D , *Chairman, Committee on Prize Essays*

### 1940 M.D. License Plates

Physicians should apply directly to their local motor vehicle department offices by mail or in person It is necessary to attach a prescription blank or stationery showing that the applicant is an M D

### SCIENTIFIC EXHIBIT

Application blanks are now available for space in the Scientific Exhibit at the Annual Meeting at New York City, May 6, 7, 8, 9, 1940 Attention is called to the fact that applications close on January 1 Blanks will be sent on request to Dr William A Krieger, Chairman, Committee on Scientific Exhibits, 103 Hooker Avenue, Poughkeepsie, New York

# PROSTATIC OBSTRUCTION

## Medical and Surgical Aspects\*

HUGH H. YOUNG, M D, Baltimore, Maryland

(From the James Buchanan Brady Urological Institute Johns Hopkins Hospital)

THE prostate presents many problems to the surgeon and medical practitioner. It is frequently involved in gonorrheal infections, and with the seminal vesicles forms a serious problem. Fortunately, with the introduction of chemotherapy, intravenous injections of 1 per cent mercurochrome, and more recently sulfanilamide in daily doses by mouth, many previously intractable cases of extensive infection of the prostate and vesicles in gonorrhea are now curable. The persistence of a catarrhal prostatitis following not only gonorrheal but other forms of prostatic infection often presents a troublesome problem, owing to the onset of painful and neurologic symptoms, which may have a serious effect on the patient, especially when associated with marked disturbances in sexual intercourse, or accompanied by referred pain to the back and other regions. The remote symptoms may be so prominent and the local symptoms so slight that chronic prostatitis may be completely overlooked.

In the presence of low back pain and also various other painful conditions in the region of the back, hips, thighs, and legs, the prostate always should be ruled out by rectal palpation, stripping microscopic examination, and culture of the expressed contents. Prostatic massage, intraurethral medication, diathermy, etc., will often clear up long standing painful referred symptoms in remote regions.

Tuberculosis of the prostate occurs much more frequently than usually supposed, not only in cases where the disease was thought to be localized to the epi-

didymides or kidneys but also sometimes to the lungs or peribronchial glands. By a radical operation (which was demonstrated by lantern slides and motion pictures) satisfactory complete eradication of tuberculosis of the entire seminal tract can be accomplished.

Obstructive conditions of the prostate are of many types. Some are congenital in character, either in the form of contractures or bars, or of valves springing from the verumontanum, which may produce such great obstruction to urination as to cause serious lesions in the kidneys. The symptoms presented by these infants are often typical—marked marasmus, distended abdomen, palpably enlarged kidneys, ureters, and bladder, and incontinence of urine, which escapes in a very fine stream. A small catheter generally is arrested in the deep urethra, being halted in the pouch beneath the valves. These cases, which previously were discovered only at autopsy, are now easily found by endoscopy, and cured by destruction with the high frequency current. General practitioners should be on the lookout for these rare but very fatal conditions in the newborn.

Later in life, contractures and bars at the vesical orifice may come on as the result of chronic inflammation. Many years ago the author presented a simple operation for radically curing these cases—a punch operation—by means of which the obstruction at the orifice was entrapped in the fenestra of the urethroscopic instrument and excised. This operation inaugurated transurethral resection of the prostate, which, with modified instruments, has been extended to every form of prostatic obstruction. Some

\* This paper was based on lantern slides and motion pictures.



operators go so far as to say that even the greatest hypertrophies are amenable to this method

In about 700 cases in which the author has employed his method of prostatic excision or transurethral resection, as it is generally called, he has usually confined the operation to contractures of the vesical orifice, bars, and early hypertrophies. The results obtained have been excellent, and the mortality practically nil. At various times he has used the method on progressively larger hypertrophies, but after considerable experience has found that for such cases an enucleating prostatectomy is preferable. Statistics to this effect will be given later.

Prostatic hypertrophy is frequent in men past 50 years of age, and is often associated with carcinoma, which recently has been shown by Rich and by Moore to be present in over 14 per cent of autopsies on males past 45 years of age. In 50 per cent of the cases of carcinoma, adenomatous hypertrophy of the median or lateral lobes of the prostate is present. Calculi are also not infrequently found, both in the hypertrophied and in the unenlarged prostate.

These conditions form an important group of cases that cannot be satisfactorily treated by transurethral resection, and for these and other reasons the perineal method of approach is the most satisfactory procedure. Owing to imperfect perineal technic by early operators in which a median incision was used that went through the bulbous and membranous urethra, greatly injuring the external sphincter and triangular ligament with consequent incontinence in many cases, the perineal operation for a long time was looked upon with general disfavor. With the introduction of an anatomic approach through an inverted "U" perineal incision with simple development of the lateral spaces back of the triangular ligament by blunt dissection and accurate division under the eye of the central tendon and rectourethralis muscle, we have shown that the prostate can be exposed without danger of injuring the external sphincter or rectum. After the

introduction of our tractor through an incision at the apex of the prostate, the posterior surface can be so completely exposed that it can be studied, palpated, incised and, if necessary, biopsies made to determine whether any portion of the prostate is malignant. The ease with which this can be done certainly makes it incumbent upon practitioners and surgeons to try to discover carcinoma of the prostate early, when it can easily be cured by a radical operation.

Statistics presented first by us, and confirmed by Rich and by Moore, show that carcinoma of the prostate in a large percentage of cases begins in the posterior lobe just beneath the capsule, where it can easily be palpated as an indurated area by the finger in rectum. If practitioners could be induced to make rectal examinations a routine part of all physicals in men past 40 years of age, many early cases of carcinoma of the prostate could be recognized and cured. If the case proves to be nonmalignant, through bilateral capsular or inverted "V" incisions, the adenomatous lobes may be easily enucleated (Fig 1), and the prostatic wound closed by drawing down the mucous membrane of the vesical neck and suturing it to the prostatic urethra and capsule lower down.

In this way complete surgical closure of the operative wound, with the exception of a small area used for drainage, is secured, and often healing of the perineal wound without urinary leakage is obtained. Not infrequently the patient is ready to leave the hospital twelve or fourteen days after the operation, some have gone home sooner. The advantage of a completely sutured, clean wound and the absence of necrotic tissue that has been destroyed by electrical excision or fulguration, which often becomes infected, is very great. The surgical result obtained more nearly conforms to those principles of aseptic surgical closure.

It has been argued that transurethral resection should supplant prostatectomy because it is a simpler operation, a safer operation, and the patient is more quickly

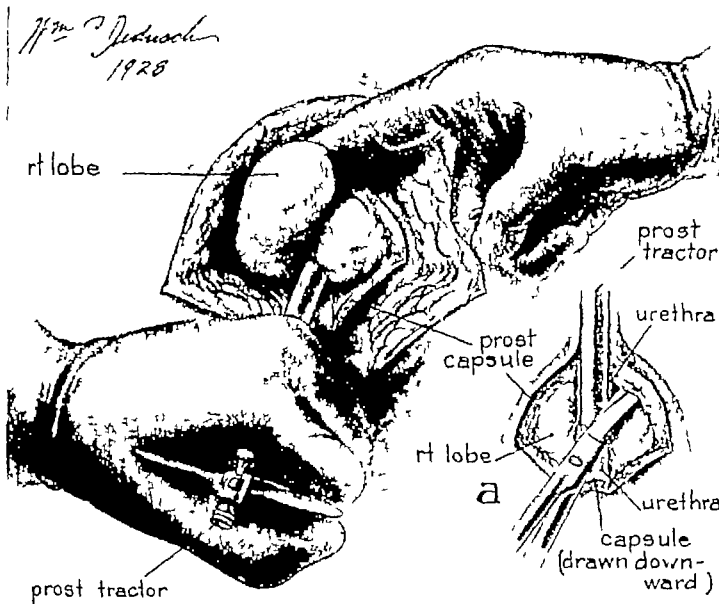


FIG 1 Enucleation of lateral lobes through inverted V' incision. In a the inverted V' flap of posterior capsule and urethra is pushed backward while with enucleating scissors the enucleation of left lateral lobe is begun.

cured. That such is generally the case, I deny. Many collections of cases in which the transurethral operation has been used show that in the first 100 cases the operator usually has had a mortality varying between 5 and 20 per cent, and not infrequently higher. The most complete and commendably frank series of

cases by one of the greatest transurethral resectionists, Dr. Alcock, is presented in Table 1. As shown here, the mortality is low when the amount of tissue resected is small, whereas the mortality increases considerably as large amounts of tissue are resected. Other series of cases with lower mortality have been presented in

TABLE 1.—MORTALITY IN RELATION TO AMOUNT OF TISSUE REMOVED BY TRANSURETHRAL PROSTATIC RESECTION IN 800 OF DR. ALCOCK'S CASES

Weight of Tissue Gm.	No. of Cases	Percentage	Deaths	Mortality Percentage
0-10	80	11.1	3	3.3
10-20	358	44.7	20	5.5
20-30	195	24.4	19	9.7
30-40	78	9.3	7	9.3
40-50	37	4.6	2	5.4
50-60	22	2.8	3	13.6
60-70	13	1.6	1	7.8
Over 80	158	19.7	13	8.2

recent papers The objection to some reports of very few deaths is raised that it is unfair to base operative mortality simply on the few postoperative days in which the patient remains in a surgical bed, and that deaths occurring while the patient is under necessary local treatment in a hotel two or three weeks immediately following the transfer from hospital to hotel should be included

Recent statements made in an exhibit by the Section on Urology, Mayo Clinic, at meetings of the American Medical Association and the American Urological Association, give, we believe, an inaccurate basis of comparison In this exhibit the following statements were made

"Transurethral resection is a safer operation than prostatectomy "

"Prostatectomy Out of 1,922 cases operated on from 1924 to 1932 there were 138 deaths (7.2 per cent mortality) "

"Transurethral resection Out of 4,492 cases operated on from 1932 to 1938 there were 52 deaths (1.2 per cent) "

That these statistics from the Mayo Clinic give an inaccurate comparison, and a particularly erroneous view of the results obtainable by prostatectomy, is indicated by many statistics from other clinics I may cite particularly the results with perineal prostatectomy published by Cecil, who reported a mortality of 0.6 per cent in patients under 80 years of age Edwin Davis reported 741 cases of perineal prostatectomy with a mortality of 2.7 per cent

I have reported 1,049 consecutive cases of perineal prostatectomy with 36 deaths (3.2 per cent) During the time comprised in my report, there was one period in which there were 128 consecutive cases without a death, and another in which there were 198 consecutive cases without a death The 199th patient died six weeks after operation of femoral thrombosis

Another evidence of the benignity of the perineal operation is shown by a report from one of our resident urologists,

Dr Walter W Baker, who reported 48 cases of perineal prostatectomy for benign hypertrophy without a death

More recently Dr Samuel A Vest has collected all the cases operated upon by the last five resident urologists at The Johns Hopkins Hospital During this period there were 233 prostatectomies, 217 of which were perineal, 7 being radical operations for carcinoma Among these 217 cases there were 3 deaths (1.2 per cent), which is distinctly lower than the mortality rate for transurethral resections during the same period

Dr John E Dees, who has just completed his residency at the Brady Urological Institute, has had only 1 death in 60 operations on the prostate through the perineum for benign hypertrophy, perineal prostatectomy, 46 cases, 1 death In addition Dr Dees did the following perineal operation with no deaths radical perineal prostatectomy for carcinoma, 5 cases, conservative perineal prostatectomy for carcinoma, 1 case, perineal prostatolithotomy (with partial prostatectomy in 3), 5 cases, complete removal of the prostate, seminal vesicles, and portion of the bladder for carcinoma of bladder and prostate, 1 case, radical excision of the seminal tract, including both seminal vesicles and most of the prostate, 2 cases (thus gives a total of 60 perineal prostatectomies with only 1 death) Suprapubic cystotomy for drainage was carried out in 1 case only, previous to perineal prostatectomy There were 2 cases of suprapubic prostatectomy with no deaths

Additional information concerning prostatic operations has been given at the Mayo Clinic exhibit at the Golden Gate International Exposition (San Francisco, 1939) from which the following extracts may be cited "Fearing the grave dangers and suffering attendant on the old type of operation, most men waited until they were too weak to stand the operation " "The operation is done painlessly through an electrically lighted tube " "No cut is made in the abdomen or crotch "

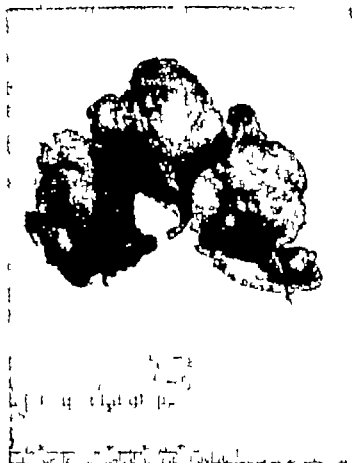


FIG 2 Case 1 Lobes enucleated perineally two and one half years after transurethral electric resection.



FIG 3 Case 2 Transurethral resection three years previously Median lobe had been completely resected, but large laterals remained and were enucleated perineally

The wide usage of transurethral resection is relatively recent, but already a considerable number of cases have been encountered in various urologic clinics that testify to the frequent incompleteness of this operation, the frequency of chronic infection, prostatitis, painful conditions at the vesical neck, dysuria, recurrent hemorrhage, gradual development of more and more obstruction, vesical calculi, cystitis, and other complications.

Perhaps we can best demonstrate our point by citing a series of cases that have come to us after having been previously subjected to transurethral resection elsewhere with unsatisfactory results.

### Case Reports

*Case 1*—T DeS. had moderate difficulty of urination, arose twice at night to urinate. He underwent transurethral resection elsewhere seven months ago and since then had suffered a great deal. He had marked difficulty of urination, nocturia every half hour day frequency of every hour, pain on urination, hesitation. The

prostate was much enlarged. The residual urine was 40 cc. Cystoscopy showed that much tissue had been removed but much more remained. Perineal prostatectomy was done median and lateral lobes (Fig 2) removed the tissue weighed 42 Gm. Patient was cured.

*Case 2*—C. W. S. A transurethral resection had been performed elsewhere. Following operation the patient had marked burning frequency and periods of hematuria. Two years later the symptoms persisted and the patient had to arise seven times at night to urinate. Examination showed that the median lobe had been completely removed but large lateral lobes remained. Perineal prostatectomy was carried out. Two lateral lobes, weighing 55 Gm were removed (Fig 3). The ultimate result was excellent.

*Case 3*—P. B. underwent transurethral resection elsewhere three years previously. On admission the patient complained of attacks of retention and intermittent hematuria. The prostate was considerably enlarged. A perineal prostatectomy was performed and tissue weighing 60 Gm. was removed (Fig 4). The result was splendid.

*Case 4*—W. C. underwent a transurethral resection elsewhere two years before. After operation he had marked hesitancy diminution



FIG. 4. Case 3. Lobes enucleated three years after transurethral resection. A very small median lobe remained, but laterals were very large.

FIG. 4 Case 3 Lobes enucleated three years after transurethral resection. A very small median lobe remained, but laterals were very large

in the size and force of the stream, marked nocturia, dribbling, and cystitis. The prostate was much enlarged. Perineal prostatectomy was carried out. The tissue removed weighed 69 Gm. The result was excellent.

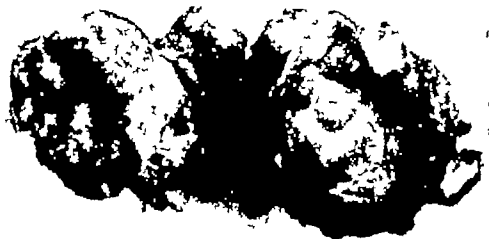
*Case 5*—K. L. K. had a transurethral resection elsewhere in 1930 and again in 1935. On admission the patient had marked frequency, urgency, difficulty, and cystitis. The prostate was considerably enlarged. Residual urine amounted to 425 cc. Cystoscopy showed large lateral and median lobes. A perineal prostatectomy was performed successfully and the tissue removed weighed 62 Gm.

*Case 6*—M. J. B. had a transurethral resection elsewhere in 1933, but he continued to have marked burning, hesitation, frequency, and dribbling. Cystoscopy showed incomplete removal of hypertrophied lobes. The prostate was markedly enlarged. The residual urine was 50 cc. Perineal prostatectomy was successful and the tissues removed weighed 62 Gm.

*Case 7*—C. C. H., a physician, underwent transurethral resection elsewhere two and one half months prior to admission. He said "The operation lasted two hours, a handful of tissue was removed, and the bleeding lasted intermittently for twenty-eight days. I never regained control, and have total incontinence when on my feet." Examination showed that the median and left lobes had been removed along with a portion of the membranous urethra and sphincter.

Through a suprapubic incision the remaining prostatic lobe was removed, and through the perineum a segment of the scarred urethra was excised in an effort to cure the incontinence, which was partially successful. The lobe removed weighed 18 Gm.

*Case 8*—G. A. underwent a transurethral operation elsewhere two years previously. He continued to have pain and hematuria. A suprapubic operation was performed and a calculus removed six months later. On admission the patient voided every two hours with difficulty. There was a severe cystitis. Cysto-



Inches

9877

81gm

FIG. 5. Case 9. Median and lateral lobes removed two years after transurethral resection.

scopy showed enlarged median and lateral lobes. At perineal prostatectomy (Jewett) lobes weighing 43 Gm were removed. The result was excellent.

*Case 9*—C. S. had a transurethral operation elsewhere two years previously. Since then there had been persistent burning, urgency and frequency, and nocturia seven times. The prostate was markedly enlarged and a calculus found in the bladder. Perineal prostatectomy was carried out and a calculus two inches in diameter and prostatic tissue weighing 81 Gm removed (Fig 5). The result was excellent.

*Case 10*—J. C. On June 20, 1936, a suprapubic prostatectomy was performed. On July 6 a transurethral electric resection was performed elsewhere, 56 Gm of tissue being removed. This failed to remove the obstruction. A second transurethral resection was performed, and 16 Gm removed. After that the patient had prolonged fever and still was unable to void. The prostate was found to be considerably enlarged. Cystoscopy showed three lobes that projected into the bladder. On August 21, 1936, perineal prostatectomy was carried out.

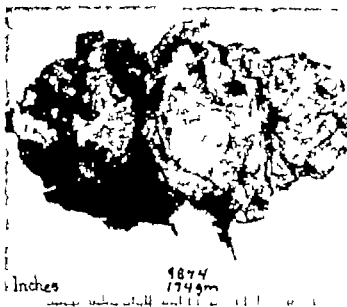


FIG 6 Case 10 Huge lobes weighing 174 Gm enucleated after two transurethral resections had been done and 72 Gm tissue removed without relief of obstruction

and two very large lobes weighing 174 Gm (Fig 6) were removed.

The cases cited above exemplify the point that has been stressed by numerous observers, namely, that in section before or after operation is the frequent cause of imperfect results with transurethral resection. As Kretschmer has said

"Secondary infections on the fourteenth day or thereabouts are due to infection or sloughing. Infection has been the big bugbear with transurethral resection

As another has put it

Long-continued and often permanent infection of the urine is the worst feature. These patients usually have frequency and urgency of urination worse than before operation. One does not see this state of affairs after prostatectomy. It must be due to infection in the remaining partly resected hypertrophied lobes. Some of these patients pay dearly for their shorter period of hospitalization.

It has also been shown that whereas the patient undergoing transurethral resection may remain in the hospital only a week, he generally requires several weeks postoperative treatment. Even though he may have left the hospital, he generally remains in a hotel under medical treatment so that little is saved in expense. The cases cited above present

so succinctly the varied complications that may follow transurethral resection that further comment is unnecessary.

The strongest indictment of the dictum that all cases of prostatic obstruction can best be treated by transurethral resection is the fact that such an ideology fails to include any effort whatever to cure cancer of the prostate, in which the author has shown that a high percentage of cures can be obtained by his radical operation, in which the prostate with its capsule, neck of the bladder, and both seminal vesicles are removed in one piece (Fig 7). A positive diagnosis of early carcinoma can only be made, in many cases, by perineal exposure and biopsy. It is, therefore, incumbent upon prostatic operators to be prepared skillfully to expose the prostate through the perineum, and to carry out examinations and operations shown to be indicated.

As one largely responsible for the development of transurethral operations upon the prostate, I would be the last to condemn this procedure that I have employed so effectively in hundreds of cases, but I am forced to state that such technic is certainly not the ideal in many prostate cases. It is not only reprehensible to give no chance of cure to early cases of cancer of the prostate, but, also, to attempt by a whittling operation to remove great hypertrophies, which at best can only be partially tunnelled and which not infrequently require other operations to obtain a permanent cure, unsurgical to say the least. It is on a par with routine injection treatment of hernias.

### Conclusions

The frequency of prostatic disease and the remote symptomatology accompanying it make it essential that all practitioners carry out routine rectal examinations of the prostate. By so doing, many unsuspected pathologic conditions, including early carcinoma of the prostate, may be disclosed.

By early radical perineal prostatectomy, carcinoma of the prostate often may be cured. In cases of benign obstruction, a transurethral operation with

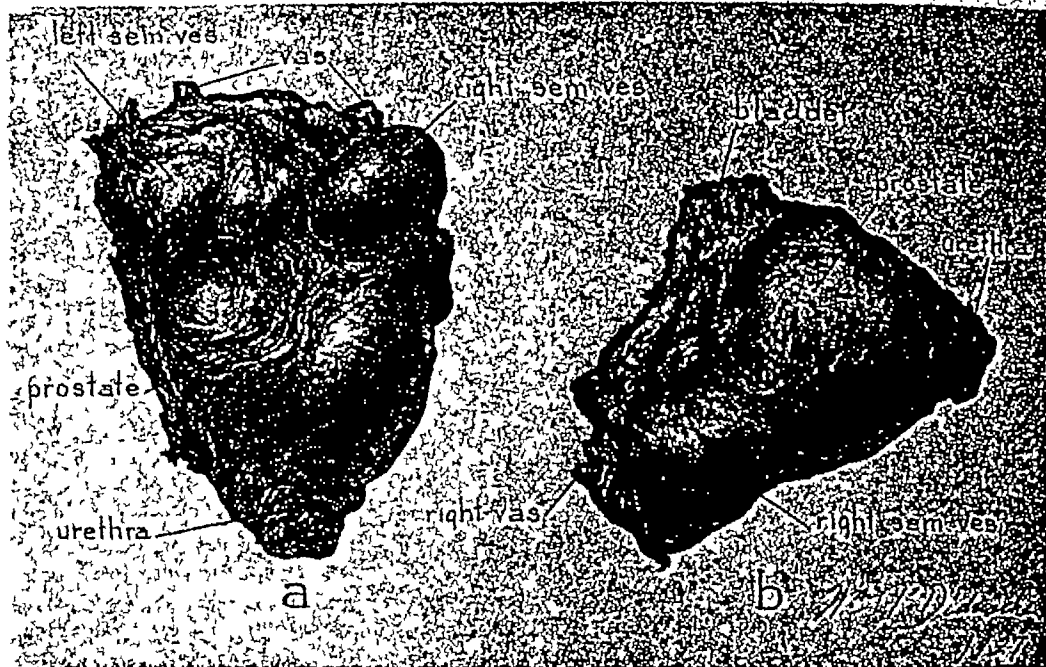


FIG 7 Specimen removed at radical operation for cancer of prostate *a*, posterior view showing portion of membranous urethra and prostate with its capsule, both seminal vesicles and ampullae of vasa deferentia, *b*, lateral view showing same and cuff of bladder attached to prostate.

the Young punch or some of its modifications is a highly successful operation in early cases and also in fibrous contractions and bars

For larger hypertrophies such methods are not ideal, and simple enucleation, especially through the perineum, is a more rational operation, for it is permanently curative and also carries low mortality.

In cases in which the patients have been subjected to transurethral resection and return with obstruction, hemorrhage, prostatitis, calculi, or other complications, complete enucleation, usually through the perineum, of the remaining hypertrophied lobes is the operation of choice.

## Discussion

**Dr. Alexander R. Stevens, Syracuse**—This assembly has been particularly fortunate in hearing the subject of prostatic diseases presented by a master urologist. I feel sure I express the opinion not only of the many workers who obtained their initial ideas and enthusiasms directly from the reader of the paper, but also of urologists in general, that Dr Young has done more than anyone else to clarify this field and differentiate the various pathologic conditions of the prostate. He has shown the way in

therapy and has devised original technics, now standard, for sound surgical treatments. His paper includes so many individual items that I should prefer to confine my remarks to the two most common conditions of the prostate, chronic prostatitis and prostatic obstruction. In the minds of many doctors, inflammatory conditions and the different pathologic conditions which cause obstruction are badly confused. The expression "prostatic trouble" seems to include a multitude of symptoms and discloses vagueness concerning notions of etiology. I would emphasize a simple differential point, useful in a high percentage of cases, which concerns nocturnal frequency of urination. Long-standing chronic prostatitis (with the associated posterior urethritis) may give marked frequency of urination in the daytime but (in contrast) often none at night, whereas obstructive states will cause frequency at the same interval when the patient is reclining as when he is upright. Moreover, residual urine is rarely present with chronic prostatitis and when it is found, an obstructive factor exists. The knowledge of symptoms of chronic prostatitis has advanced little in the past two decades, and indeed the treatment is basically as it was years ago—massage (not too frequent), heat in various forms aimed at the prostate, and at times urethral dilatation and applications. The more recent emphasis on better drainage by enlarging prostatic sinuses

emptying into the urethra, by transurethral methods, is applicable to only a few cases. The use of sulfanilamide in chronic prostatitis has been reported of benefit but in my experience it is very disappointing in the chronic cases.

The problem in prostatic obstruction is first to establish the fact that obstruction really exists and is the cause of existing symptoms and that inflammation and sexual disturbances are not to be held accountable. This is fundamentally important and particularly so since someone introduced the idea of prophylactic operating! The necessity of excluding the neurologic factor is present in every case of urinary disturbance, and a neurologic examination should be included as routine. Then the nature of the lesion and the particular type and contour of the obstruction are determined as accurately as possible, as these factors influence greatly the subsequent advice. The benign conditions are all susceptible to cure by more than one surgical method. The day of hormonal treatment may be in the near future but such efforts are but experimental at present. The tremendous popularity of the transurethral mode of attack is known to all who read the daily papers. The advantage of this over open operation by either suprapubic or perineal approach in certain types of obstruction, is quite universally acknowledged. The many failures in the past to remove fibrous obstructions in the bladder neck by suprapubic approach is known to all. Such cases—small bars and median lobes—can better be removed by transurethral surgery than an open method. Just how far this method shall be used in general enlargement of the prostate is a matter of personal judgment. Surgeons differ widely in their technical skill. Indeed I know of no operation that has such a large personal factor. Only one person can be responsible for a transurethral resection and he must assume full responsibility for poor results or even disasters. The choice between suprapubic and perineal approach is apparently based largely on one's early and present influences—much as is the case with politics or religion. No one should use the perineal approach without proper training and knowledge of the detailed anatomy. The suprapubic method should be preferred by the occasional operator, and it has been improved in recent years by a better approach to the bladder avoiding dissection into the space of Retzius with possible serious infections subsequently, also the methods of control of hemorrhage have been improved upon. But it is most important that the perineal method be employed in any patient in whom one suspects possible carcinoma. The use of radium and x-ray in

carcinoma of the prostate is so disappointing that I feel the most reasonable hope of a cure is by employment of complete prostatectomy as described by Young in early cases. His method of perineal approach, with a frozen section diagnosis made from the tissues from suspicious areas is most rational. This operation is not so difficult and the functional results as concerns urinary control are amazingly good.

I am delighted that I have been able to hear Dr. Young again and never fail to profit from his addresses.

Dr. Clarence G. Bandler, *New York City*—  
Dr. Young in his characteristically lucid manner has graphically presented the problem of prostatic obstruction with its variegated clinical manifestations, together with therapeutic approaches to the correction of such pathology. It must be apparent that such a small anatomic section of the body bounded as it is by the internal and external vesical sphincters, exerts a profound influence not only locally but systemically as well.

The posterior urethra in the male represents the site of fusion of the urinary and reproductive systems. Any aberration in the development or normal fusion of either system may predispose to direct or indirect interference with the egress of urine. The resultant urinary obstruction, whether it is partial or complete, sets up clinical manifestations. These may be readily apparent but far more important is the lesion which insidiously acts over a period of years to cause eventual renal insufficiency.

The vesical neck and its encircling prostate, by its very location has complete mechanical control over urinary excretion. A unilateral upper urinary tract obstruction, even if it entails complete interference with the outflow of urine from one kidney is of little consequence when compared with the absolute control over both kidneys exerted by the prostatic urethra. From infancy to senescence, the importance of unimpeded urinary outflow is essential and the brunt of this responsibility should not fall so much upon the urologist as it should upon the obstetrician, pediatrician, and general practitioner who first see such cases.

To Dr. Young goes credit for making the first clinical diagnosis of valvular obstruction of the posterior urethra. Previously the condition had been noted at autopsy by Langenbeck in 1802 and was accidentally found in vivo by Eigenbrodt in 1892. However, it was not until 1918 that Dr. Young demonstrated the lesion clinically through urethral instrumentation and visualization.



In conjunction with a consideration of valves of the posterior urethra, one should be ever mindful of the role of the verumontanum, whence the valvular flaps may arise and then course to the lateral wall of the posterior urethra or the internal sphincter. In 1923, Bugbee and Wollstein reported a series of 8 children with bilateral dilatation of the ureters, 7 of whom had hypertrophy of the verumontanum, without any demonstrable bands or valves. We have seen 2 such cases, with beginning urinary obstructive manifestations, where simple fulguration of the hypertrophied structure resulted in relief of obstruction with prompt disappearance of symptoms. In effect, these male children experience similar symptomatology to the elderly prostatic victim, since the mechanical factor is the same.

The treatment of prostatic hypertrophy has been the subject of endless discussion and often bitter controversy, we shall not continue it here. Suffice it to say, the ideal treatment is that which fits the particular pathology, presented by the individual case, utilizing the technic with which the individual operator is most familiar and most successful. I have deliberately emphasized individualization of cases, for then only can the best interests of the patient be served.

Dr. Young has long advocated and conclusively demonstrated the efficacy of perineal prostatectomy for the relief of prostatic obstruction. In his hands, and in the hands of those whom he has trained (and even unto the third generation who have trained under the master's pupils), it is an ideal procedure. On the other hand, for the inexperienced or inept, such a procedure can, and often has, resulted in excessive morbidity, to say nothing of vesical incontinence due to injury to the external sphincter.

There are urologists who routinely subject all prostatic hypertrophies to perineal prostatectomy, there are others who do nothing but suprapubic enucleation of the gland, and still others who have adopted the closed method of transurethral resection of the encroaching organ to the exclusion of any other method. I hold no brief toward any of them. If one were to take a Utopian view, each method is ideally suited for a specific type of prostatic pathology and the ideal urologist would be one adept in all techniques. Since this is difficult of attainment one must be content with fitting suitable therapy to the urologist's surgical attainments.

An illustrative instance of my point of view is that of the treatment of carcinoma of the prostate. In the early case, and I use the term "early" hesitatingly, complete extirpation of the prostate and adnexa represents ideal surgical

procedure. Dr. Young has carried out such surgery often and successfully. It is a formidable task which, however, is often well rewarded.

Furthermore, it is impossible to tell really whether the malignancy has not spread beyond the reaches of the most expertly wielded scalpel by the time the patient comes to surgery.

It has been stated that 15 per cent of all males over 50 years of age are victims of carcinoma of the prostate. The deep-seated nature of the process often precludes early diagnosis and when clinical manifestations occur it is often too late to hope for complete extirpation. It is in this group that the method of transurethral resection of the prostate finds ideal application. Carcinoma of the prostate is characteristically slow in its growth and slow to metastasize. If one can give such patients even a few years of comfort, much will have been attained. In fact, many of the elderly victims of the disease die, not of the carcinoma, but of some intercurrent infection or cardiovascular complication.

The subject of surgical therapy in prostatic obstruction has taken on a strong sectional complexion. Facetiously, transurethral resection has been allocated as the sine qua non of the corn and cotton belt. The Mid-West and South have admittedly "gone overboard" on this particular procedure. To carry on the geographic division of the country, one may consign perineal prostatectomy to the oyster belt. Suprapubic prostatectomy would seem then to have become a homeless and forgotten waif. Recent survey of our statistics at the New York Post-Graduate Hospital shows that about 60 per cent of cases coming to prostatic surgery are being subjected to transurethral resection while the remaining 40 per cent are handled by suprapubic enucleation.

A small group of cases, constituting urinary obstruction in the aged or markedly debilitated, is worthy of special consideration. Where surgery is absolutely contraindicated or has to be deferred, or where it is refused, intermittent urethral catheterization, or the use of the indwelling urethral catheter for a period of time, finds worthy application. It may sound like heresy for an actively practicing urologic surgeon to advocate such procedures, yet I have seen patients live for several years on such a regimen.

Before closing, I believe a brief reference to recent advances in the field of endocrine therapy, with special reference to the prostate gland, is in order. Considerable investigation is being carried on experimentally in the laboratory and also clinically with endrogenic and estrogenic sub-

stances and their influence on the prostate gland. Testosterone represents the product of extraction, isolation, and recrystallization from testicular tissue. Its use in patients with benign prostatic hypertrophy in the hands of various groups in this country and abroad, has been attended in some instances by marked decrease in hesitancy and nocturia, ability to void a freer stream, variable reduction in residual urine but without demonstrable evidence of actual diminution in the size of the gland.

In no sense of the word is hormone therapy a substitute for surgical intervention. Prostatic obstruction due to carcinoma or sclerosis from previous inflammatory lesions is not amenable to such therapy. It is possible that a portion of that large group, comprising benign prostatic hypertrophy, may be helped clinically by hormonal medication. Whether the present available substances represent the potent and true sex hormone or its byproduct, or just one of a number of allied hormones remains for future work to prove or disprove. In the past endocrinology has been the happy hunting ground for quacks as well as genuine clinicians. Let us not be unduly swayed by preposterous miracle workers nor too smug to consider the possibilities of a field which may open a new vista to the problem of prostatic hypertrophy.

Dr Roy B. Henline, *New York City*—I have enjoyed Dr Young's very comprehensive discussion of prostatic disease and was particularly interested in the beautiful motion pictures demonstrating radical perineal prostatectomy and radical perineal surgery for tuberculosis. These form an excellent method of teaching and when done so well as shown in these pictures they appear to be fairly simple procedures.

I should like to call your attention to the value of cystourethrograms as an additional method of determining the size, location, and extent of enlargement of the prostate. It is estimated that the impression concerning the size of the prostate is incorrect in 50 to 60 per cent of cases from rectal examination alone. We believe that cystoscopy although often helpful may be inadvisable in certain cases.

The size of the obstructing prostate, its location and extension may help determine the best surgical procedure to be employed. This can be determined by a cystourethrogram which affords little discomfort to the patient (Lantern slides showing the value of urethrograms in prostatic enlargement).

The perineal approach to the prostate is the only procedure which actually permits one to do a real prostatectomy in contradistinction to what

should be called an 'adenectomy'. In many types of enlargement of the prostate, an adenectomy only is required. These are the most common types of prostatic enlargement.

However, I should like to stress again the fact that patients with early malignancy of the prostate, and those with multiple prostatic calculi with marked infection require definite surgical procedures. In these patients, the prostate itself is involved and occasionally no adenoma exists. Since the prostate itself is involved and the process exists down to and including the capsule of the prostate, it is almost impossible to remove adequately the affected area without including the capsule in the removal. In some of these patients we therefore, must remove the entire prostate and capsule by performing a total or subtotal excision of the involved area. This can only be done by a perineal approach to the prostate.

It has been our practice to follow approximately the perineal approach as outlined by Young. In excising the prostate with its capsule, we usually leave a small cuff of tissue at the apex of the prostate which is finally sutured to the vesical orifice. By this procedure we remove all the local carcinoma in early cases and offer the best chance for cure. In prostatic calculi and severe chronic infections we have removed the entire focus of infection although this usually is done only in elderly patients.

Dr John E. Heslin, *Albany, New York*—Few papers dealing with diseases of the prostate fail to quote Dr Young and certainly no discussion of his paper is complete without a tribute to his contributions. No greater tribute to his work in prostatic surgery could be given than the recent statement that had we all the skill of this master perineal operator there would be no further discussions as to the method of relieving prostatic obstruction.

Dr Young in his very complete paper and the previous discussions have covered the subject so thoroughly that what little I have to say is apt to be a repetition but will emphasize some practical points.

I have always been interested in chronic prostatitis and its role as a focus of infection. It is often overlooked and seldom looked for in the routine search. Response to proper treatment directed to the gland may aid greatly in clearing up cases without other foci or what is also important, cases not responding after removal of other foci—residual infection in the prostate accounting for the continuance of symptoms.

Chronic prostatitis does not necessarily follow

acute attacks nor is it necessarily associated with acute symptoms. Although most cases give a history of previous gonorrheal infection, absence of this history does not rule out infection of the prostate by any means. In suspicious cases, more than one massage with examination of the expression should be given before infection is ruled out. All cases of prostatitis do not show symptoms, and therapeutic tests will prove the relation of this infection to the particular case.

In spite of the efficiency of sulfanilamide and other drugs in infections of the urinary tract, many cases of pyuria will persist, due to deep-seated infection in the prostate. Associated local treatment may secure the desired result.

Other frequent manifestations of chronic prostatitis are the symptoms associated with the sexual act. Before the immediate use of the present potent hormone therapy, organic disease in the urethra and prostate must be ruled out.

In applying treatment to the infected gland, we must visualize its anatomy, and observation and treatment should be carried out over some period of time with visits at increasing intervals.

The value of rectal examination in routine yearly checkup visits has long been stressed. The value of the estimation of residual urine at this examination in some cases was illustrated in a case cited at a recent New York meeting. An internist, in a complete examination of his patient, was disturbed to find a very small output of phthalein in a two-hour period. Further investigation revealed a large amount of residual urine, accounting for the low phthalein output and probably the patient's general symptoms.

Transurethral resection of the prostate in skilled hands has earned a place with enucleation of the gland as a means of relieving obstruction. Possessed with sufficient skill, the resectionist can remove a large amount of tissue to allow excellent function with little reaction and no remaining lobules of prostatic tissue to slough and cause long-standing cystitis with its symptoms. Results in resection as well as in perineal and suprapubic removal of the gland depend directly upon the skill of the operator and his hospital organization for the pre- and postoperative care of his patients. Lacking these, one should limit his resections to the simple cases.

Proficiency in all three procedures is the ideal desired and should be considered in the training of urologists. The resectionist must be a well-trained urologist, capable of not only recognizing the indications for the operation and its limita-

tions but also of handling any local complication that may arise. His training in resection must be under strict guidance if we are to avoid the experience of now excellent operators in their early cases. It has often been stated that the purchase of a cystoscope does not make a cystoscopist. Certainly the simple purchase of a resectoscope should not qualify a man in the use of so potent an instrument.

Resection has, in addition to its clear, uncontested indications in median bar, contracture and obstruction in extensive malignancy, contributed much to the handling of two types of cases.

The early case with symptoms of obstruction, little residual urine, not relieved by palliative measures, will often submit to resection when he would not accept open operation. With little risk, obstruction is relieved and progressive damage to his upper urinary tract averted. This, to my mind, is a valuable contribution to the conservation of renal function.

The second group includes the elderly, the poor risk and the case of extensive malignancy, most of them doomed to spend their remaining days in discomfort, dependent upon the catheter. With short bed and hospital confinement, these men can be given relief by resection when we could not consider enucleation of the gland. I feel that these individuals who depend upon us, as physicians, to relieve them in their discomfort deserve not only the knowledge that they can be given relief but, in the light of mortality figures and results, be urged to avail themselves of the comfort assured them in their remaining days.

Enucleation of the prostate is too satisfactory an operation and has secured for us too many grateful patients to be completely discarded. However, indications for enucleation are apt to be found in the group between the two classes mentioned above. Patients in this group now handled by many by resection will probably determine the fate of the general use of the resectoscope. Recurrence of obstruction and development of malignancy in the remaining prostatic tissue are two important factors to be determined by time and careful observation of operated patients.

Dr. Young has given us a practical and very valuable discussion of an important subject. His opinions based upon long and scientific experience must be strongly considered. We are most fortunate in having him with us today.

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"Teach the tuberculous patient to regard symptoms as red and green signal lights and not

something to worry about"—*Nat. Tuberculosis Assn.*

## PERIARTERITIS NODOSA

Report of Three Cases Diagnosed Clinically and Confirmed by Necropsy in Two Instances and by Biopsy in the Third Case

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**T**HE diagnosis of periarteritis nodosa has seldom been made during life, and then it has been more or less accidental. It is, therefore, a matter of great interest to record 3 cases with the correct intravital diagnosis.

### Case Reports

**Case 1**—F. H., a man aged 36, was admitted to Bellevue Hospital on January 28, 1936, with one week's history of pain in the right abdominal flank and of cough and dyspnea. The pain radiated from the flank to the anterior aspect of the right side of the chest and sternum. The coughing spells had been severe at times. The dyspnea was more marked at night, particularly when in the recumbent position. He had vomited on three occasions, each time in the morning. For the past month he had had nocturia two or three times and also polydipsia and polyuria. He had pneumonia at the age of 9 years. He denied venereal disease.

Physical examination on admission revealed a poorly nourished young adult appearing extremely ill and in great distress. His color was of an ashen-gray hue. There was marked dyspnea. The lungs showed loud, moist rales throughout. The heart sounds were not audible. The pulse was very rapid and regular but thready. The abdomen was moderately spastic but not tender. The blood pressure could not be elicited. The temperature was 100.2 F. The white blood count was 16,400 with 80 per cent polymorphonuclears. The red blood count was 3,600,000 with 55 per cent hemoglobin. The urine showed a specific gravity of 1.020 with 3 plus albumin, a few granular casts, clumps of white blood cells, but no red blood cells. The clinical picture was suggestive of coronary thrombosis.

On January 29 there was an improvement in the patient's general condition. There was still a marked pallor but only a moderate degree of dyspnea. The heart appeared enlarged to percussion. There was tachycardia and gallop rhythm. There were signs of diffuse pulmonary congestion and of small amounts of fluid in both

pleural cavities. The fundi showed a moderate degree of arteriolosclerosis. The temperature was now 102.4 F. The electrocardiogram showed right axis deviation, QRS complexes of low voltage and sinus tachycardia, but no other striking changes. The blood nonprotein nitrogen was 35 mg per cent. It was now thought that this might be a case of acute glomerulonephritis associated with myocardial failure.

For the next few days the patient appeared to show some further improvement in the clinical picture. The temperature dropped to 99 F and the pulse was 100. The urine however continued to show albumin, many hyaline and granular casts, a few white blood cells but no red blood cells. The blood pressure was now 164 systolic and 96 diastolic. The electrocardiogram now showed complexes of lower voltage and a few premature auricular contractions. Except for the return of the fever the patient's condition remained unchanged until February 10 when he appeared very ill again. Dyspnea became marked. The heart showed a very rapid rate and sounds of very poor quality. The signs of myocardial failure were pronounced. The electrocardiogram showed amplitudes of still lower voltage, inverted T waves in all the leads and occasional premature auricular contractions. These findings were indicative of progressive myocardial damage. The blood pressure was 172 systolic and 114 diastolic. The white blood count was 12,300 with 84 per cent polymorphonuclears. The blood nonprotein nitrogen was 36, the creatinine 1.6 and the uric acid 3.4 mg per cent. The abnormal urinary findings persisted. Blood Wassermann was negative. The signs of renal and myocardial damage, hypertension, and retinal arteriolosclerosis were indicative of a diffuse vascular disease. The presence of an irregular fever, moderate leukocytosis, and anemia in addition to the signs of widespread vascular alterations led to the diagnosis of periarteritis nodosa.

His further clinical course was mainly one of exacerbations and remissions. There were periods when he showed a minimal degree of circulatory failure and a practically normal temperature. These were frequently interrupted by

sudden rises in temperature and the development of signs and symptoms of severe myocardial failure. The blood pressure continued to rise progressively, until it reached a systolic of 202 and a diastolic of 156. The fundi now showed a more advanced stage of arteriolosclerosis and linear hemorrhages.

His urine showed persistent albuminuria, cylindruria, and a moderate number of white blood cells, but no red blood cells except in the last specimen taken on March 17. The specific gravity of the urine ranged between 1.010 and 1.016, with the exception of two determinations, which were 1.020 and 1.025 respectively. A skin and muscle biopsy taken on March 2, failed to show the presence of periarteritis nodosa.

On March 4 the patient developed facial erysipelas. This responded promptly to the specific antitoxin.

The final phase of his illness was ushered in by a severe hemoptysis on March 13. This was followed by a picture of shock, with collapse of the peripheral circulation. Supportive treatment resulted in some improvement. From this point on, however, his clinical course was rapidly downward.

On March 16 he became semicomatose and developed signs of meningeal irritation, with moderate nuchal rigidity and positive Brudzinski and Kernig signs. A spinal tap yielded a clear fluid under increased pressure. The spinal fluid showed 30 cells but no other abnormal findings. The blood nonprotein nitrogen was now 90 mg per cent. The patient died on March 17, 1936.

#### Autopsy (March 18, 1936, Drs. Overton and Hutcheson)

The body was that of a poorly-nourished, poorly-developed white male, 36 years of age. There was no external edema. There was a small ulcer over the dependent portion of the right sacrum. On section the subcutaneous fat was very small in amount and the muscle tissue fairly well developed and deep bluish red in color. The peritoneum was smooth and glistening throughout. There were old fibrous and fresh fibrinous adhesions and about 250 cc of pale straw-colored fluid in either pleural cavity. The pericardium was smooth and glistening. The heart weighed 450 Gm. In the right auricle were found four endocardial thrombi varying in size from a pinhead to a pea. On section, a mucoid whitish pus-like fluid was released from these thrombi. The cusps of the tricuspid valve were thin and delicate and the chordae tendineae were thin and not fused or shortened. The cusps of the pulmonary valve appeared

natural. The right ventricular chamber was dilated and its wall slightly hypertrophied. There were several pinhead-sized thrombi at the bases of the papillary muscles in the region of the apex. The left auricle was moderately dilated and its wall moderately hypertrophied. The auricular appendix was free of thrombi. The orifice of the mitral valve admitted two fingers with ease, and its cusps were somewhat thickened but flexible. The chordae tendineae were not fused or shortened. The left ventricle was slightly dilated and its wall at the attachment of the posterior mitral leaflet was 12 mm in thickness. There were 25 or 30 whitish thrombi on the endocardium, varying in size from a pinhead to a marble. On section these thrombi yielded a similar fluid to that already described. The orifice of the aortic valve admitted two fingers, and its cusps were natural. The myocardium was smooth, glistening, and reddish brown in color. The aorta was small in caliber, its walls were thin, and it contained many raised atheromatous plaques. The coronary arteries were apparently well preserved. The lungs were congested and contained many firm areas of deep red color. Sections from these areas sank in water. The bronchial mucosa was moderately injected and the lymph nodes were anthracotic, edematous, and congested. The pulmonary arteries and their branches appeared natural. The spleen weighed 250 Gm. On section it cut readily. The cut surface was smooth, moderately friable, and the pulp was abundant and grayish red in color. The gastrointestinal tract was natural except for some congestion of the wall of the small bowel. The liver weighed 1,800 Gm. On section, the substance was nutmeg in appearance. The lobules were not distinctly made out. The gallbladder contained a quantity of thick viscid bile. The mucous membrane was apparently well preserved. The adrenals were small, with a yellow cortex and fairly broad medulla. The kidneys weighed 200 Gm each. Their surface was rough and contained grayish red depressions. The cut surface showed very little normal appearing cortex and medulla. The greater part of the surface was occupied by yellowish-white firm tissue, which in places ran out from the pelvis to the periphery, forming an appearance similar to that of the ribs of a fan. The testes were small. The cut surface was smooth, the substance pinkish yellow in color, and the tubules strung out readily. The skull presented no noteworthy changes to the naked eye. The dura stripped readily. The underlying pia-arachnoid was moderately injected. The external and cut surfaces of the brain appeared natural. There was some sclerosis of the

vessels at the base. The lateral ventricles contained a clear spinal fluid

**Gross Anatomic Diagnoses.** Subacute diffuse glomerulonephritis hypertrophy and dilatation of the heart endocardial thrombi coronary sclerosis, atherosclerosis of the aorta fibrous pleural adhesion fibrinous pleurisy pulmonary congestion and edema lobular pneumonia hydrothorax chronic passive congestion of liver, chronic passive congestion of spleen

**Microscopic Examination.** The epicardial coronary arteries had a moderate number of atheromatous plaques. Attached to the endocardium were fresh fibrin and platelet thrombi, which in places had broken down and contained many polymorphonuclears. The pleura was partially covered by a thin fibrinous exudate. The parenchyma of the lung was flooded with fresh blood. The veins were distended with blood and fibrinous thrombi. Several small arteries had necrotic walls that were infiltrated with polymorphonuclears. Heart failure cells were prominent throughout. There were also small areas with intra-alveolar exudation of polymorphonuclears and serum. Some of the bronchi had desquamated epithelium and intra luminal polymorphonuclear infiltration. Small areas of fibrosis were also present. The splenic sinuses were congested. The sinuses in the liver lobules were distended with blood. The submucosa of the colon had many large thin walled sinusoids. On one side of these was a thrombosed vessel. The entire stroma of the vessels was edematous and infiltrated with polymorphonuclears and lymphocytes. The overlying mucosa was similarly involved. The adrenal capsules were greatly thickened by scar tissue in which there were many thick walled arteries whose lumens were stenosed by widened intimas. There were focal collections of lymphocytes. The medulla of one of the glands showed a freshly thrombosed artery. Portions of the kidneys were perfectly normal. There were areas with an excess of fibrous tissue and a striking paucity of the tubules. The convoluted tubules were entirely absent. At the apex of one of these triangular areas there was an artery with a greatly thickened, fibrosed wall and a stenosed lumen, which was filled with a partially organized blood clot. Its wall was infiltrated with a moderate number of lymphocytes. Another section showed a subcapsular, anemic infarct. Another area showed a more recent infarct with dense polymorphonuclear infiltration. The small arteries showed thickening of the intima but little evidence of inflammatory activity. The testicles showed several vessels that were filled with thrombi and had necrotic walls. The



FIG 1 Section of adrenal gland. Note large vessel with necrosis of wall. The smaller vessels show inflammatory exudate in the wall and in the lumen.

adjacent tissues were hemorrhagic and also partially necrotic. Some arteries were filled with unclotted blood, had normal endothelium and were surrounded by broad zones of necrosis. The brain was normal.

**Final Microscopic Diagnosis.** Same as the gross with the following additions: Acute pulmonary arteritis, acute arteritis and endarteritis obliterans in the adrenals (Fig 1), multiple renal infarcts and fibrosis with endarteritis obliterans of renal vessels.

**General Diagnosis.** Periarteritis nodosa.

**Bacteriology Report.** Postmortem cultures of the endocardial thrombi showed hemolytic streptococcus and staphylococcus aureus.

The correct clinical diagnosis in this case was based on (1) the presence of signs of widespread vascular alterations, as shown by the signs of renal and myocardial damage, hypertension and renal arteriosclerosis, (2) the evidence of an infection, as fever and leukocytosis, and (3) the presence of an anemia. One can only speculate on the possible relationship between the bacteria found in the endocardial thrombi and the etiology of the periarteritis nodosa in this case.

**Case 2**—O. R., a man, aged 53, was admitted to Bellevue Hospital on November 14, 1936, with the chief complaint of numbness and pain in both legs below the knees for two months.

The pain was aggravated on walking and was localized mainly in the calves and heels. For the previous week he had had a staggering gait. There was an indefinite history of chills and fever for the previous two weeks. The arms and hands were not affected. He denied the use of alcohol and of venereal disease. His past and family histories were irrelevant.

**Physical Examination** The patient appeared pale and chronically ill. The pharynx was moderately injected. The tongue appeared normal. There were a few subcrepitant rales at the bases of both lungs. The heart showed no abnormal findings. The blood pressure was 130 systolic and 80 diastolic. The liver and spleen could not be felt. Both legs showed weakness, with particular involvement of the extensor muscles. There was slight edema of both legs and distinct tenderness over the calves. The pupils were equal and reacted to light and accommodation. There was an old right internal strabismus. The knee and ankle jerks were slightly diminished, but all other deep reflexes were active. The abdominal reflexes were present. The Babinski and the confirmatory signs were negative. There was distinct diminution of all sensations over the lower extremities. His gait was of the high-steppage type. There was, however, no ataxia. The fundi were normal. The temperature was 102 F. The clinical picture was that of a peripheral polyneuritis, involving both lower extremities.

**Laboratory Studies** Urinalysis showed a specific gravity of 1.025, no albumin, glucose, casts, or red blood cells and only five white blood cells per high-power field. The erythrocyte count was 4,300,000 with 65 per cent hemoglobin. The leukocyte count varied between 12,300 and 20,400. The differential showed 90 per cent neutrophils, 2 to 9 per cent lymphocytes, and 1 to 7 per cent eosinophils. The gastric analysis was normal. The blood Wassermann test was negative. The blood smear was negative for malaria. The blood culture was sterile. The Widal, Felix-Weil, and Meltenis agglutination tests were all negative. The spinal fluid findings were essentially normal. The blood showed a sugar content of 138 mg per cent and a nonprotein nitrogen of 36 mg per cent. A roentgenogram of the lumbar spine revealed no abnormal findings.

**Course.** The patient continued to run an irregular fever, ranging between 99 and 104 F. The pulse was proportional to the temperature. There was progressive drowsiness. The pain in the legs and the neurologic signs remained unchanged. During the second week of his

hospital stay he developed gastrointestinal symptoms, namely vomiting and diarrhea. These were controlled by appropriate medication. Examination of the stools showed no parasites, ova, or bacteria of the salmonella or dysentery groups. Repeated blood cultures were negative. The blood vitamin B content was reported to be diminished. The leukocytosis persisted and there developed also a marked secondary anemia, with an erythrocyte count of 1,430,000 and 23 per cent hemoglobin.

The clinical course with polyneuritis, gastrointestinal symptoms, fever, leukocytosis, eosinophilia, and anemia led to the diagnosis of periarthritis nodosa. Accordingly, a muscle biopsy was done. No characteristic lesions were determined in these sections.

On December 2 the drowsiness became more marked. The blood pressure rose to 150 systolic and 90 diastolic. The urinalysis, which had previously been normal, now showed a specific gravity of 1.012, 3 plus albumin, 50 white blood cells, and numerous red blood cells. The blood nonprotein nitrogen advanced to 150 mg per cent. These developments indicated the presence of renal damage and renal insufficiency, and furnished further evidence of the existence of a widespread vascular disease.

On December 7 the patient had a severe hemorrhage from his nose and mouth. The breathing became deep and rapid. The blood nonprotein nitrogen rose to 200 mg per cent. He went into deep coma and died the same day.

**Autopsy (December 8, 1936, Drs. Solomon and Hutcheson, 5 days after death)**

The body was that of a fairly well-developed, well-nourished white male of about 50. The lower extremities showed a marked edema, well up on the thighs. On abdominal section, the peritoneum was smooth, gray, and glistening. There was no free fluid in the peritoneal cavity, and the abdominal viscera were in normal apposition. There were fibrous pleural adhesions. The pericardium was smooth, gray, and glistening. The heart weighed 420 Gm. The epicardial surface showed a few grayish white areas. The myocardium of the left ventricle was slightly thickened but normal in color and consistency. There was no change in the valves. The coronary vessels showed a slight amount of subintimal lipid deposit. The aorta was smooth throughout, with a few scattered atheromatous plaques. The lungs were natural in color and consistency. The trachea and bronchi contained a small amount of frothy fluid. The pulmonary arteries were natural. The liver was brownish in color and

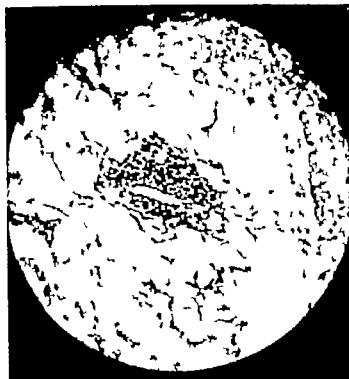


FIG 2 Section of diaphragm. Note cellular infiltration of vessel wall and perivascular tissue.

its capsule smooth. The gallbladder contained about 10 cc. of dark viscid fluid, but no stones. The spleen had a thickened capsule that was slate gray in color. The cut surface showed irregular grayish white nodules, some of which were calcified. The mucosa of the gastrointestinal tract appeared natural. The pancreas and adrenals were natural. The kidneys were enlarged each weighing 300 Gm. The capsule stripped with ease and left a fine hemorrhagic surface. The cortex showed small hemorrhagic areas. The brain contained a large hemorrhagic clot in the region of the left internal capsule and hypothalamus. There was a subarachnoid hemorrhagic clot over the surface of the brain, medulla and cord.

**Gross Anatomic Diagnoses.** Acute glomerular nephritis coronary artery sclerosis cardiac hypertrophy epicardial fibrosis pleural fibrosis pulmonary edema, cerebral hemorrhage subarachnoid hemorrhage of brain and cord.

**Microscopic Examination.** The heart showed no abnormal findings. The alveoli of the lungs were filled with serum and the vessels were congested. The splenic pulp was edematous and infiltrated with polymorphonuclears. Some of the small arteries had thick fibrosed walls while others had necrotic walls with dense infiltration of polymorphonuclears. Many of the vessels contained fresh and organized thrombi. The arteries of the adrenal capsules, kidneys, and diaphragm showed similar changes. In addition, many of the glomeruli were fibrosed while others showed cellular

crenate formation. The kidneys showed also interstitial fibrosis and lymphocytic infiltration. The brain showed an extensive fresh hemorrhage surrounded by polymorphonuclear infiltration.

The final microscopic diagnoses were periarteritis nodosa (Fig 2) subacute glomerular nephritis cerebral hemorrhage.

The correct clinical diagnosis in this case was made on (1) the presence of a polyneuritis, (2) gastrointestinal symptoms, (3) severe anemia, (4) signs of infection as fever and leukocytosis, (5) slight eosinophilia, and (6) the final development of renal insufficiency.

**Case 3**—A R. a man, aged 60 was admitted to Sydenham Hospital May 18 1939 with the chief complaints of pain in the extremities weakness loss of weight, and fever of three months duration. The onset was gradual with chills and fever and pain involving at first the calves of his legs and later also the upper extremities, back, and neck. The pain was continuous and severe and forced him to stay in bed. For the past two months he had also numbness and tingling in his hands and feet. There was a marked progressive asthenia. The weight loss during the three months was about twenty pounds. The fever was irregular reaching at times 102 F and was frequently accompanied by chills. He gave a past history of syphilis for which he was treated inadequately.

Physical examination revealed a pale and cachectic adult appearing chronically ill. His pupils were contracted and reacted sluggishly to light and accommodation. The lungs were clear. The heart showed no abnormal findings. The blood pressure was 100 systolic and 90 diastolic. The liver and spleen could not be felt. All the extremities showed cutaneous hyperesthesia and marked muscle tenderness. A few small subcutaneous nodules were felt over both forearms. The fingers were clubbed. The biceps and patellar reflexes were normal but the ankle jerks could not be elicited. There were no pathologic reflexes. The fundi were normal. The temperature ranged between 100 and 102 F.

**Laboratory Studies.** Urinalysis showed a specific gravity of 1.013 a trace of albumin, a few granular casts an occasional red blood cell and 5 to 7 white blood cells per high power field. The erythrocyte count was 1,650,000 with 56 per cent hemoglobin. The leukocyte count was 23,900 with 85 per cent neutrophils of which 70 were segmented and 6 band forms, 5 per cent lymphocytes, 6 per cent monocytes, and 4 per cent eosinophils. The erythrocyte



sedimentation rate was 140 millimeters in one hour. The blood showed a nonprotein nitrogen of 34, a urea of 17.5, uric acid 2.4, and a creatinine of 1.7 mg per cent. The blood culture was sterile. The agglutination tests for typhoid, paratyphoid, melitensis, and typhus were all negative. The Wassermann and Kahn tests were negative. The phenolsulphonephthalein excretion was 24 per cent in two hours. The sputum was negative for tubercle bacilli. A roentgenogram of the lungs showed some calcified areas in both upper lobes.

The clinical picture with polyneuritis, cachexia, anemia, fever, leukocytosis with slight eosinophilia, hypertension, and evidence of impaired renal function led to the diagnosis of periarteritis nodosa.

Biopsies were then made of a subcutaneous nodule and of a piece of gastrocnemius muscle. Both sections showed arteries with extensive necrosis of the media and intima and cellular infiltration of the vessel wall and surrounding tissues (Fig 3). The cells consisted of polymorphonuclear leukocytes, eosinophils, and lymphocytes. The vessel lumen was in many instances occluded. The adventitia showed distinct fibroblastic thickening. These pathological findings confirmed the diagnosis of periarteritis nodosa.

Of late there has occurred a definite improvement in his condition, as evidenced by a drop in temperature to normal and the disappearance of the muscle pain and tenderness.

The correct clinical diagnosis in this case was based on (1) the presence of a polyneuritis, (2) the cachexia and anemia, (3) the signs of infection, as fever and leukocytosis, (4) the slight eosinophilia, (5) the subcutaneous nodes, (6) hypertension, (7) evidence of renal damage.

Periarteritis nodosa presents an extremely varied symptomatology, as would be expected, since the arterial system of any organ or set of organs may be involved. This makes the antemortem diagnosis very difficult. Meyer<sup>1</sup> mentioned the combination of chlorotic marasmus, polyneuritis, and gastrointestinal symptoms as being a diagnostic triad. To these manifestations Brinkmann<sup>2</sup> added nephritis. Almost without exception there are also signs of sepsis, as fever and leukocytosis. Varying grades of eosinophilia are said to occur in about 12 per cent of the cases. Erythema-

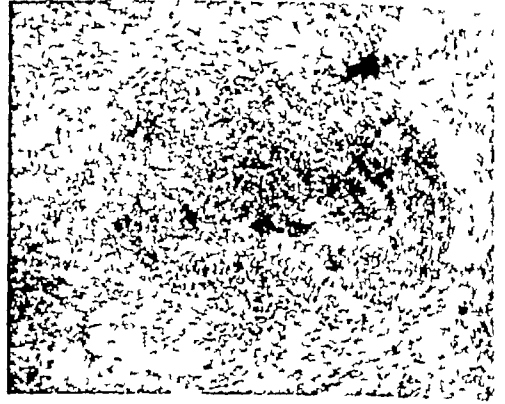


FIG 3

tous and hemorrhagic skin lesions and subcutaneous nodules are not infrequent. A skin and muscle biopsy may be of help in establishing the diagnosis.

In Case 1 the clinical picture was dominantly one of heart failure. In addition there were signs of sepsis, anemia, and finally of renal disease. It is to be noted that the muscle biopsy was negative. Case 2 presented the complete evolution of the tetrad of Meyer and Brinkmann. In addition there were also the manifestation of sepsis and a slight eosinophilia. The muscle biopsy, however, was not diagnostic. The third case fulfilled three out of the four criteria of the Meyer and Brinkmann tetrad, and, in addition, showed evidence of infection, a slight eosinophilia, subcutaneous nodules, and positive skin and muscle biopsies.

It seems to us that the accurate intravital diagnosis of periarteritis nodosa can be made more often if the clinician will bear in mind the possibility, whenever he encounters a case with signs of widespread vascular involvement, associated with evidence of sepsis with a sterile blood culture and anemia. The tetrad of Meyer and Brinkmann also offers a logical foundation for the diagnosis of this disease. Finally, it is important to perform a skin or muscle biopsy whenever the existence of periarteritis nodosa is suspected, although a negative result of this procedure does not rule out the possible presence of the disease.

<sup>1</sup> Meyer, S. *Klin Wchnschr* 58:473 (1921).

<sup>2</sup> Brinkmann. *Munchen med Wchnschr* 69:703 (1922).

# MALIGNANT TUMORS IN CHILDREN

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(From the Ellis Hospital Laboratory Schenectady)

W. ROGER WILLIAMS,<sup>3</sup> in one of the earliest surveys of the incidence of malignant neoplasms, found, for England and Wales, many such tumors in early life but of rare occurrence when compared with later age periods. He noted that malignant epithelial tumors were practically unknown under the age of puberty, that retinal glioma was peculiar to early infancy, and that there was marked proclivity of infants to malignant neoplasms of the kidney. His generalization was that the tendency to malignant tumors is exceedingly small during the periods of growth, development, and reproduction and that those parts of the body attaining maturity earlier, such as the uterus, ovary, and breast, were attacked earlier. Nevertheless, his own data indicated that malignant tumors in children were most frequent in the kidney, retina, and adrenal gland.

Steffen's compilation,<sup>6</sup> often quoted also showed that tumors of childhood most commonly involved the kidney, adrenal, brain, and eye in the order named. Berrisford (1916), in a study of 153 cases of glioma retinae, found that none occurred after the age of 7 years. Merkel (1912), listed 110 cases as follows: large intestine, 28, ovary, 25, skin, 16, testis, 3, buccal cavity, 2, hypophysis, 2, liver, 13, stomach, 7, adrenal, 5, pancreas, 5, small intestine, larynx, uterus, and thyroid gland, 1 each.

Figures for the United States registration area in 1914 for ages up to 15 years showed the order of frequency as follows: kidneys, adrenals, bones, brain, and eye. In 1936 there were, in the United States registration area, under the age of 14 years, 282 white male and 257 white female deaths from malignant tumors of all kinds. In the same year there were

133,953 white deaths from tumors of all kinds or 1 childhood tumor to 248 in the adult. Under 1 year of age there were 50 male and 48 females. Warthin,<sup>8</sup> in a series of 2,000 malignant tumors, found 44, or 2.2 per cent, in children under 15 years. Of these, 31 were sarcoma, 6 carcinoma, and 7, mixed tumors. Fibiger and Trier<sup>1</sup> found in Denmark a rate of 43 per 100,000, or 0.52 per cent, childhood tumors.

Frederick L. Hoffman,<sup>4</sup> in a recent survey for certain areas in the United States, found for Albany, New York, in the period 1924-1929, 6 cases under 15 years, or a ratio of 1 to 71 of all malignant tumors, an incidence that seems unusually high when compared with other statistics. Dr. J. V. DePorte informs me that during 1937 in New York State exclusive of New York City, there were, out of a total of 8,904 cancer deaths, 26 under the age of 15 years, or 1 in 343. We thus find for the state and the nation as a whole that tumors in childhood maintain a fairly constant ratio under the age of 15 years and that they are of infrequent occurrence.

Over an eleven year period, 1928-1938 we observed 15 malignant tumors in children up to 15 years of age and a total of 2,050 malignant tumors of all kinds, or a ratio of 1 childhood tumor to 137 in the adult. Since all of the general, medical, and operative work for Schenectady County, with a population of 120,000, is centralized in one hospital, we feel that few if any malignant tumors escaped our notice. Several undoubted cases from which tissue was not obtained are not included.

The table lists the cases according to age and gives certain pertinent data. All of our cases of malignant neoplasms

*Read at the Annual Meeting of the Medical Society of the State of New York  
Syracuse April 26 1939*

## MALIGNANT TUMORS IN CHILDREN

No	Age	Sex	Organ	Tumor	Trauma	Bi- opsy	Opera- tion	Radia- tion	Duration in Months	Result
1	5 Mo	F	Foot	Fibrosarcoma	—	+	—	+	36	Alive
2	10 Mo	F	Left adrenal	Neurocytoma	—	—	—	—	6	Dead
3	2 Yrs	F	Right adrenal	Carcinoma	—	+	+	—	12+	Dead
4	2 Yrs	M	Left adrenal	Neurocytoma	—	—	—	+	3	Dead
5	2½ Yrs	F	Kidney	Adenosarcoma	—	—	+	—	3	Dead
6	2½ Yrs	F	Right adrenal	Neurocytoma	—	—	—	—	6	Dead
7	5 Yrs	M	Retropentoneum	Myxosarcoma	—	+	+	—	2	Dead
8	5½ Yrs	F	Humerus	Ewing tumor	—	+	—	+	12	Dead
9	7 Yrs	F	Brain	Glioma	—	—	+	—	6+	Dead
10	8 Yrs	M	Kidney	Carcinoma	—	—	+	+	24	Dead
11	11 Yrs	F	Uterus	Carcinoma	—	—	+	+	9	Dead
12	12 Yrs	M	Brain	Glioma	—	—	—	—	2+	Dead
13	14 Yrs	F	Tibia	Osteosarcoma	+	+	+	—	2	Dead
14	15 Yrs	M	Orbit	Gliosarcoma	—	+	+	+	?	Dead
15	16 Yrs	F	Femur	Giant cell sarcoma	+	+	+	—	2	Dead

occurred in white children, 10 females and 5 males. Under the age of 8 years the kidney and adrenal were most often affected, whereas above the age of 8 years the nervous system and bones were most often involved. Of the 15 cases, but 1 is alive, a 5-month-old female child with a fibrosarcoma of the foot, now two years since the tumor was first seen. All others died in less than a year from the time of onset of symptoms except 1 case, a hypernephroma of the kidney, which lived two years.

There were but 2 cases under the age of 1 year—1 at 5 months and the other at 10 months. Three of the tumors of the adrenal gland were of the neurocytoma type—1 illustrating a typical Pepper syndrome, the other 2 a typical Hutchinson syndrome. There were only 3 bone sarcomas. Biopsy was performed in 7 of the cases, in practically all of which the tumor was accessible, and in each instance the pathologic diagnosis was clearly evident. In the case reports that follow, only sufficient pathologic data are given to identify the type of tumor.

### Fibrosarcoma of the Foot

Our youngest patient was a 5-month-old male child who in June, 1937, had a small swelling on the sole of the left foot near the heel and, because of its apparent rapid growth, a biopsy was performed. Microscopic examination showed a very cellular tumor made up of closely packed, elongated cells having large, oval nuclei. Mitoses were very abundant. The cells invaded and replaced the subcutaneous fatty tissue and gave the impression of rapid growth. A series of x-ray treatments were administered; the

tumor disappeared and there has not been any recurrence to date.

An interesting feature in the record is the definite response to radiation by this type of tumor, which is usually considered radioresistant.

### The Suprarenal Group

These tumors proved interesting and instructive because of the startling clinical syndromes.

A blond female child, 2½ years old, pale and puny, had digestive disturbances, vomiting, dyspnea, and an enlarged and tender abdomen. She was emaciated, dehydrated, and three small ecchymotic spots appeared in the upper right eyelid. The temperature was 100 F, pulse, 142, and respirations, 22. The chest appeared normal. The abdomen was distended, the superficial veins prominent. There was palpated in the right side of the abdomen a large, firm, notched mass that extended from the sixth rib to the pelvis.

At the necropsy, the left adrenal gland appeared normal. The right adrenal was replaced by a tumor measuring 10 × 7 × 6 cm. Its upper surface was adherent to and incorporated with the liver. The tumor appeared encapsulated and, on section, soft, spongy, and markedly hemorrhagic except for large central areas, which were firm, yellowish white, and resembled in fact a tumor. The only other organ having gross pathologic changes was the liver. It measured 23 × 20 × 8 cm, and its dark red surface was studded by small and large, slightly elevated nodules. Some were grayish, others deep red, and the majority were umbilicated, particularly the larger ones in the right lobe. Cut section disclosed numerous similar nodules, but more sharply defined than the surface tumors. Other organs were not involved and bone studies were not made.

Microscopic examination showed a cellular tumor composed of small rounded or oval cells with scarcely visible cytoplasm and deeply staining nuclei of fairly uniform size. Those cells having nuclei in mitosis were larger and the cytoplasm more abundant. Incomplete or atypical rosettes were fairly numerous stroma scarcely visible.

This case illustrates neurocytoma of the adrenal gland with the Pepper syndrome.

A 10-month-old female previously well nourished and normal, developed greenish yellow discoloration in the right eyelids that was thought to be due to unobserved injury. Shortly after similar discoloration involved the left eyelids and a mass was palpable in the left side of the abdomen. The child slept poorly and was irritable and pale. Blood changes were those of secondary anemia. The face soon became asymmetric with pronounced swelling of the left side bulging eyes, and many elevated purplish green areas in the pinnae of the ears and temporal regions. The exophthalmos became more marked, the right eyeball was almost extraorbital. A tumor mass within the mouth pushed the teeth outward and the infant ex- pectorated numerous immature teeth mainly from the tumified left side of the jaws. A large mass was palpated in the left side of the abdomen.

Necropsy disclosed a large retroperitoneal tumor involving the left adrenal gland from which it appeared to take origin for in its capsule was a remnant of adrenal tissue. The tumor was brownish red soft, and slightly lobulated. The cut surface was brownish red hemorrhagic and sprinkled with pale gray soft areas. Metastases were found in the ribs and bones of the skull particularly the left half of the cranium and the base. Large hemorrhagic tumor nodules projected inward from the inner table of the left parietal bone. The tumor was composed of cells, the majority of which resembled lymphocytes. Some cells were larger had considerable cytoplasm and were multinucleated. Others were spindle shaped and associated with a fine intercellular fibrillar substance. Characteristic rosettes were present.

This case illustrates the Hutchinson syndrome, associated with neurocytoma of the left adrenal gland.

A 2-year-old boy six weeks previously developed a 'black eye'. Several purplish discolorations appeared in the lids of both eyes and a few days later small swellings over the entire



FIG 1 Fibrosarcoma of the foot. Five month-old child. Tumor disappeared after x-ray treatment.

head. The child was irritable anemic and lost weight rapidly. The swellings over the skull and face became larger and soft and were tender. The blood showed 36 per cent hemoglobin (S) 1 000 000 erythrocytes 9 000 leukocytes 48 per cent polymorphonuclears 47 per cent lymphocytes. The clotting and bleeding times were normal and the urine not remarkable. Several weeks later the face became distorted by the growing tumor masses in the bones and soft tissues. Ulcerating bleeding tumors involved the buccal mucosa there was marked exophthalmos, the right eye was extraorbital. The anemia and emaciation increased markedly.

Necropsy showed a normal right adrenal gland. The left adrenal was replaced by a large purplish red, soft tumor  $8.5 \times 5 \times 4.5$  cm. which appeared encapsulated. The cut surface was brownish red, almost hemorrhagic. At the upper end of the tumor were several areas of grayish yellow but firm tissue. Several enlarged retroperitoneal lymph nodes were present attached to and continuous with the tumor. The pelvis also contained enlarged lymph nodes replaced by tumor.

The head was large and asymmetric due to bulging of the frontal and parietal regions. The calvaria contained six protruding, soft, round or oval nodules nearly equal in size and measuring  $2 \times 3$  cm. They involved the outer table of the skull but the inner surface of the calvaria was quite smooth and pale except opposite the nodules, where the bone was red but firm. The base of the skull, particularly the mid portion, was almost completely destroyed as well as the orbital plates, and tumor tissue was seen extending into the orbits and antrums. A few metastatic nodules were found in the liver but not in any of the other organs or long bones.

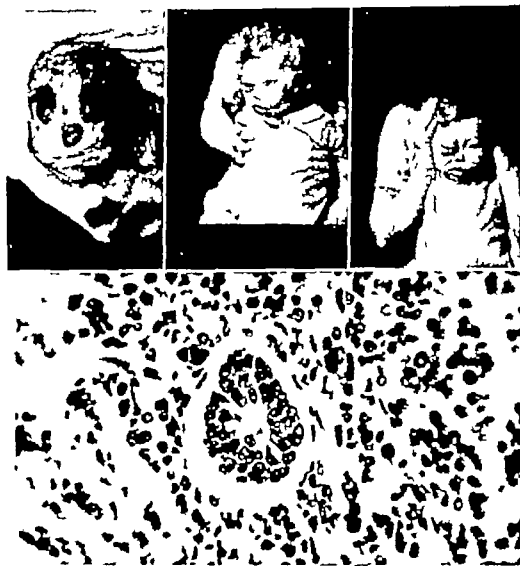


FIG 2 Neurocytoma of left adrenal gland (Case No 4) Note distortion of face, bulging eye, cranial metastases Photomicrograph of tumor showing typical rosette ( $\times 270$ )

Microscopic examination disclosed an abundance of tumor cells in the meninges, liver, lung, ribs, and marrow of the femur. The tumor cytology was similar in all organs. The cells were round or oval, of the size of a lymphocyte, and with very little cytoplasm. The nuclei were round, stained deeply, and mitotic figures were absent. Supporting the cells was a delicate network of fibrous tissue containing prominent blood vessels. Typical rosettes were seen. Considerable necrosis was present. The skull metastases were very vascular.

This case also illustrates the Hutchinson syndrome associated with neurocytoma of the left adrenal gland.

The spread of neurocytoma from the left adrenal gland is quite unlike that from the right adrenal gland and gives rise to the totally dissimilar clinical pictures, although the cellular pathology is identical. As explained by Frew<sup>2</sup> and quoted by Ewing, when the neurocytoma of the right adrenal gland spreads, it extends to the lymphatics at the upper pole of the gland and directly to the liver at the point where the adrenal is incompletely covered by peritoneum and in contact with a bare area of liver. A similar tumor of the left adrenal follows the lymphatics of the lower pole of the gland to the regional nodes, the mesenteric

nodes, the hilum of the liver, the portal spaces, the intercostal lymphatics, and the deep cervical chain along the carotid artery to the base of the skull. These conditions appear to determine the major deposits of the tumors.

Another variant of suprarenal tumor in our series is that of adrenal carcinoma of cortical cell type, which is associated with a syndrome designated virilism. This case was recently reported in detail by Dr Frank van der Bogart and is here briefly summarized.

A 2-year-old female child in previous good health but overweight, at the age of 14 months developed rapid growth of hair and marked hirsuties. All teeth but the deciduous molars were present. The clitoris was greatly enlarged, practically the size of a penis, the vulva were markedly hypertrophied but the vagina and urethra were normal. The blood picture was that of marked secondary anemia, blood sugar 136 mg per 100 cc. Hypertension was found, the fundus vessels were tortuous. Roentgenograms showed a very small *sella turcica* and tumor-like shadow in each side of the abdomen above the kidneys.

A laparotomy was performed and, from the right adrenal gland, 79.7 Gm of tumor tissue was received in many pieces. The largest piece,  $6 \times 4.5 \times 3$  cm, was soft and hemorrhagic, simulating blood clot, but the smaller pieces were pale yellow and resembled fat. The left adrenal gland was also found enlarged but was not disturbed. The cells of the tumor varied greatly in size and shape but in general were large, round, with acidophilic cytoplasm, usually vacuolated or foamy, and with indistinct margins. The nuclei also varied greatly in size. Many macronuclei and all degrees of hyperchromatism were present. Death followed shortly after the operation but a necropsy was refused and the presence of metastases was not ascertained.

### Retroperitoneal Myxosarcoma

A 5-year-old male child complained of pain in the left side of the abdomen and frequent urination. He was nauseated but did not vomit. The abdomen was spastic and tender near the lower right quadrant. There was fever and rapid pulse, the urine was normal except for constant presence of acetone, blood culture was sterile. The appendix was removed and showed subacute and chronic inflammation and organizing peri-inflammation. Owing to the peritoneal inflammation, the abdomen was not explored.

The boy returned to the hospital in about three weeks, complaining of a mass in the abdomen. It was not painful but was growing rapidly and at this time appeared quite large filling the lower and middle abdomen. The urine was negative. Blood studies were not made. The abdomen was again opened and 500 cc. of grayish brown, soft translucent tissue removed. Death occurred eighteen days after operation. Necropsy was refused.

The tumor consisted of poorly defined fasciculi of large, oval and polyhedral cells with large oval, pale-staining nuclei and rather scanty cytoplasm. Numerous mitotic figures were present. The stroma was abundant and more granular than fibrillar. A few stellate cells were present in the edematous areas. Only an occasional prominent blood vessel was seen. It was reported as myxosarcoma.

### The Glioma Group

There were 2 *brain tumors* in this group. 1 a glioma of the left cerebrum in a 7 year-old girl who had the usual pressure symptoms of this type of tumor. A decompression was performed and the tumor grew to large size outside the skull. Months later death occurred and the necropsy disclosed a tumor replacing the left half of the cerebrum and greatly compressing the right cerebrum. Histologically it was considered a spongioblastoma.

The other tumor was in a 12-year-old boy who complained of occipital and frontal headaches for about a year. He was also dizzy, nauseated and at times vomited. When walking his left foot dragged and he tended to fall forward and to the left. No other data were available for he died on his first day in the hospital. Necropsy disclosed a grayish white, nonvascular tumor  $4 \times 2 \times 3$  cm. in the fourth ventricle which compressed but did not invade the medulla or cerebellum. It appeared to arise from the ependymal lining but microscopically the tumor consisted of fasciculi of narrow elongated cells having prominent, oval deeply-staining nuclei and an abundance of coarse and fine intercellular fibrils. Numerous mitoses were present. The usual cytology of ependymoma was absent and rosettes were not seen. It was reported as glioma although there was considerable resemblance to leiomyoma.

Of the 2 *orbital tumors* 1 occurred in the left orbit of a 15-year-old boy without involvement of the globe. A biopsy specimen was reported as glioblastoma. A limited necropsy permitted the removal of tumor tissue from the orbit. This consisted of abundant small cells of variable shape with very little cytoplasm but large,

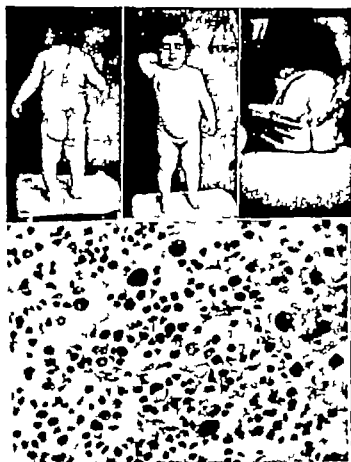


FIG 3 Virilism associated with adrenal cortical tumor (Case No 3). Note obesity hirsuties, hypertrophied clitoris. Photomicrograph of right adrenal tumor ( $\times 270$ )

deeply-staining nuclei. Mitoses were abundant. It was reported as gliosarcoma. The other orbital tumor was a typical retinal glioblastoma but no tissue was obtained and it is not included in our list.

These gliosarcomas or retinoblastomas are occasionally seen at birth, but most frequently during the first year, and gradually diminish until the eighth year, after which they are exceedingly rare.

### The Bone Sarcoma Group

The 3 cases of bone tumors occurred in the humerus, femur and tibia all in girls.

A tumor was found in a 5 $\frac{1}{2}$ -year-old girl as a soft fusiform swelling in the upper end of the right humerus which on incision yielded soft hemorrhagic tissue. Sections showed fibrous trabeculae, necrotic and but little viable tumor, the latter being composed of groups of large rounded or polyhedral cells resembling endothelial or large lymphoid cells. Mitotic figures were not seen. It was reported as Ewing tumor and radiation therapy instituted. Subsequently there was marked reduction in size of the tumor and healing of bone. A year later multiple areas of bone absorption in the cranium were found and the patient died. Necropsy was not obtained.

A 14-year-old girl while playing baseball two months previously fell on her right knee. There followed swelling, severe pain, and tumor masses about the knee. A biopsy specimen was reported as sarcoma. Roentgenograms disclosed extensive destruction of the knee joint and articular ends of the bones and "lung tumors." The leg was amputated, and in the upper end of the tibia was found a fusiform tumor  $16 \times 12 \times 10$  cm, the bulk of which was on the inner lateral aspect. The tumor encircled the joint and, although soft, it cut with a gritty character. It was a typical osteochondrosarcoma. The patient died the day after operation. Necropsy was not obtained.

A 15-year-old girl fell while skating on ice and struck her right hip, which became painful and tender on motion. Four days later a roentgenogram showed a fracture through the neck of the right femur and bone changes suggestive of malignancy. Later x-ray examinations showed increased bone destruction but a biopsy specimen did not reveal tumor. A second biopsy a week later showed characteristic giant cell tumor. She died seventy-three days after the injury of septicemia.

### The Kidney Group

Steady enlargement of a "lump" in the abdomen was noted by the mother of a  $2\frac{1}{2}$ -year-old girl over a period of three months. Pain and gastric symptoms were absent. The urine showed a trace of albumin, leukocytes, and red blood cells. No radiographic studies were made. An enlarged right kidney was removed that measured  $15 \times 6.5 \times 4$  cm and weighed 423 Gm. One pole was lacerated, exposing soft, grayish tumor tissue, which spread diffusely into the normal renal parenchyma at the opposite pole. The pelvis was normal but several calyces were filled with tumor.

Sections showed a mixed tumor composed of columns of spindle cells of fairly uniform size, with but little cytoplasm, and prominent, deeply stained, oval nuclei. Mitotic figures were very abundant. Within the areas of tumor cells was an occasional glandlike structure resembling an isolated acinus. The tumor areas were separated by broad bands of connective tissue. It was reported as adenosarcoma (Wilms' tumor).

An 8-year-old boy, resident in an orphanage, had never been very active and recently complained of shortness of breath when running, and of a mass in the upper right side of the abdomen. The urine was negative and the blood showed a moderate secondary anemia. A pyelogram suggested a cyst of the right kidney.

The kidney on removal weighed 750 Gm. Its

upper half was replaced by a soft, grayish, nodular tumor. The cut surface was spongy and made up of grayish white and faintly yellow areas with a sprinkling of small cysts in the center and periphery.

Sections showed masses of closely packed, undifferentiated, spindle-shaped tumor cells having little cytoplasm and large, oval nuclei. Mitotic figures were quite numerous. Lipoid cells were not present. It was reported as embryonal carcinoma. The operation was followed by radiation therapy, but the child died with evidence of metastases at the end of two years.

### Carcinoma of the Uterus

So exceedingly rare is cancer of the uterus in childhood that Roger Williams stated that malignant epithelial tumors of the uterus prior to the age of puberty were practically unknown. In approximately 190,000 surgical specimens and 3,000 autopsies under our direct supervision we observed but 1 such case, which was reported by Dr. Judson B. Gilbert in 1932.

The tumor was found in an 11-year-old girl, who complained of pelvic tumor and vaginal bleeding. The uterus, when removed, measured  $14 \times 6 \times 9$  cm and was made up of a solid, firm, fibrous tumor, markedly nodular and exhibiting on section numerous yellowish puncta. The tumor filled and distorted the endometrial cavity, replaced one half of the uterus, and fused with the right ovary. The right tube was not involved. The left tube and ovary were not removed.

Microscopically the tumor consisted of masses of slightly undifferentiated tumor cells separated by thick, fibrous strands. The cells, which were in multiple layers as one sees in a noncornifying carcinoma of the uterine cervix, varied greatly in size and outline and contained but few mitotic figures. The tumor was sufficiently characteristic to warrant the diagnosis of carcinoma of the uterus. She died about eight months after her operation, apparently from lung metastases, as disclosed by a radiograph. An autopsy was refused.

### Trauma

It is interesting to note that a history of trauma was present in only 2 of our cases—the bone neoplasms. The giant cell tumor of the femur was most cer-

tainly present at the time of injury, for a very large tumor was found one month after the fracture and evidence of union was not seen. The sarcoma of the tibia was quite prominent two months after the child fell while playing ball. Swelling was noted immediately and increased steadily.

These data lend little weight to the claim that trauma is a factor in inducing malignant tumors. Coincidence may explain our cases, as well as many others of like nature, for children so often sustain injuries of varying degree in all parts of the body and yet malignant neoplasms are very rare in the traumatized areas.

### Summary

These few cases from an active pathologic service illustrate the infrequency of tumors in children and their varied points of origin. It appears that no age is exempt from attack by any malignant neoplasm and that slight but persistent symptoms in children must be carefully investigated with the possibility of tumor kept in mind.

Since surgery carries a high immediate mortality, all other means of diagnosis should first be exhausted, such as frequent physical examinations, laboratory tests, x-ray studies, and biopsy. Chronic non-traumatic pain, persistent unexplained swellings, and discolorations in the skin, particularly, are worthy of constant observation until tumor is definitely excluded. Biopsy is the most important single method to employ whenever the tumor is accessible.

As soon as the diagnosis is established, treatment must follow promptly because of the high degree of malignancy of these childhood tumors. All such neoplasms should receive the benefit of radiation therapy, regardless of the histologic character of the tumor.

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### Discussion

Dr. István A. Gáspár, Rochester, New York—When malignant tumors are considered, most of us think mainly about those occurring in adults. Now Dr. Kellert has brought to us a series of malignant tumors originating mainly in the adrenals, brain bones, and kidneys of children under 15 years of age. Although as pointed out by Dr. Kellert the ratio of malignant neoplasms developing in children is only a minute fraction of that occurring in adults, there may be occasions when the familiarity with such tumors will be of help to those called upon to make a diagnosis or to those who are consulted to give an opinion. For this reason, I think, we have to be thankful that Dr. Kellert has brought this subject before the Section.

Dr. Kellert's report aroused my curiosity and I attempted to find out what can be offered in this line by a general hospital and whether or not I could substantiate his findings.

During a ten year period (1929-1938) at the Rochester General Hospital, I found only 7 malignant tumors in children under the age of 15 years. There were 3 brain tumors, 2 of which belonged to the glioma group while the third one was an angiosarcoma of the fourth ventricle. There was 1 embryonal adenomyosarcoma of the kidney, 1 Ewing's tumor of the right fibula, 1 osteogenic sarcoma of the left humerus, and 1 case of a large retroperitoneal teratoid tumor. There were no tumors originating from the adrenals. Every patient is dead.

Clinical diagnosis was made at an early time almost as soon as the patients came under observation. The necessary treatment was promptly instituted. The angiosarcoma of the fourth ventricle and the Wilms' tumor of the kidney were operated upon. This kidney tumor and also the Ewing's tumor of the fibula and the osteogenic sarcoma of the humerus, were heavily irradiated without much benefit.

Histologic diagnosis of these tumors is not difficult. Clinical diagnosis however is not easy.

Traumatic origin was considered only once in this series, namely in the case of Ewing's tumor of the fibula. Pain and slight swelling of the fibula developed within a month after injury. This is a sufficiently short time to allow the consideration of trauma as a possible etiologic factor.



Fortunately, malignant tumors in children are of rare occurrence. But when they do occur their prognosis is very unfavorable. As Dr Kellert's paper indicates and as my small series of tumors substantiates his findings, it becomes evident that, in spite of heroic efforts, there is very little one can do with a very few exceptions to alter the fatal outcome of the overwhelming majority of malignant tumors developing in children.

Dr N Chandler Foot, *New York City*—Dr Kellert has reported a very imposing list of malignant tumors observed in children over a period of eleven years. I have not been able to work out the total incidence of these tumors in our Department of Surgical Pathology over a similar stretch of time, but I have had a compilation made of those that came in during the past five years.

There is a similarity in the types encountered in a Department of Surgical Pathology and in one of General Pathology. We had a total of 18 malignant neoplasms during that time, among a total of 58 tumors of all sorts in children. Of the nonmalignant tumors, there was a great preponderance of hemangiomas, of which we had 22. Of the malignant tumors we had 4 cases of Hodgkin's granuloma, 3 sympathicoblastomas (of which 1 was a true neuroblastoma arising in the suprarenal region), 2 leukemias, and 1 example each of retinal glioma, malignant ganglioneuroma of the thorax and spinal canal (an hour-glass tumor), retothelial (or reticulum-cell sarcoma), lymphosarcoma of the thymus, embryoma (embryonal carcinoma) of the ovary, 1 Ewing's sarcoma, and 1 neurogenic sarcoma.

There was a very low incidence of tumors of the bone and kidney, as we had no malignant tumors of this sort excepting the 1 Ewing's sarcoma in the lower end of the femur of a boy of 12. I believe that Dr Kellert's collection represents a rather typical cross section of tumors that one might expect to find in a general pathologic service, as I seem to remember that we had a very similar distribution of cases while I was assistant pathologist at the Boston Children's Hospital, with particular emphasis on the embryonal tumors of the kidney.

Two of the tumor groups that Dr Kellert mentions are especially worthy of discussion, I refer to those of the kidney and sympathetic nervous system arising in the region of the suprarenals.

Our knowledge of the histogenesis and classification of the malignant neoplasms of the kidney in children is still very hazy and insecure. That organ arises in a veritable embryologic playground and the tumors that may originate in rests of the antecedents of the kidney and gonads may be very puzzling. Ewing lumps most of them in the class of "tumors of the renal blastema," which is a very inclusive term, as the blastema includes most of the precursors of the kidney and possibly of other structures. Probably the mesonephros is the most important of these. The "embryonal carcinomas" and Wilms' tumors are the best known of the group.

Sympathicoblastomas have been overhauled and reclassified, since J Homer Wright first called them "neuroblastomas," with rather complicated results. There are three possible stem cells concerned: the neuroblast (giving rise to sympathetic neuroblastomas and neurocytomas), the neuroglial spongioblast, and the pigmented phaeochromoblast. The neuroblastomas may be quite immature, or they may develop into ganglioneuromas. The spongioblasts may develop sympathetic gliomas, or differentiate into capsule cells, in which case the usual "sympathicoblastoma" (Wright's "neuroblastoma") is produced and may follow the clinical types known as the Pepper and the Hutchinson. This tumor forms pseudorosettes of small, rather readily recognized cells, with more or less neuroglia in the matrix.

The phaeochromoblasts are difficult to distinguish from the cells of the so-called "chromaffin tumors" and may be the same. They take on chromium salts in a granular form, showing a brownish stippling, or they will also take on reduced silver that impregnates the granules a brilliant black. Hence they are sometimes known as "argentaffinomas." Two types are readily distinguished: those that arise in the intestinal tract, in the form of "carcinoids" (possibly also seen in the rather rare parabranchial tumors known as "bronchial adenomas"), and those that are found in connection with the carotid body; the other type arises more or less independently and may be found near the kidney.

There is much work to be done in the classification and recognition of the two groups I have dwelt upon. One may consider our present knowledge as still unsatisfactory.

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"Are Figures Misleading?" asks the *Medical Record*. Well, not in the 1939 bathing styles

In the case of bald-headed men, it's hair today and gone tomorrow —*M Med J*

# EXTRARECTAL METASTATIC MALIGNANCY SIMULATING PRIMARY CARCINOMA OF THE RECTUM

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THE fact that metastatic growths from distant sites do encroach upon and even surround the rectum, causing symptoms referable to the lower bowel and findings misinterpreted as primary rectal malignancy, deserves more than cursory mention, and toward the avoidance of a radical extirpation in such a case, a thorough understanding of the condition in all of its phases is imperative.

As will be remembered, the peritoneum in the female passes over the summit of the uterus, the round ligaments, the inner two-thirds of the Fallopian tubes, the posterior surface of the uterus, and the upper third of the posterior wall of the vagina, where it passes backward, forming the floor of the pouch or cul-de-sac of Douglas (rectouterine pouch) by its reflection onto the anterior and lateral aspects of the upper rectum and posterior wall of the pelvis. Laterally the peritoneum spreads outward to the sacroiliac joints to form the posterior leaflets of the broad ligament. Springing backward and upward from the posterior cervical wall are two crescentic folds of peritoneum interspersed with smooth muscle fibers (uterosacral ligaments) which, as they pass to the first sacral vertebra, form the lateral boundary of the pouch of Douglas. Ordinarily the most dependent portion of the peritoneum lining the cul-de-sac descends to within 5 or 7 cm. of the perineum. In the male, however, the peritoneum is reflected from the bladder onto the upper two thirds of the anterior and lateral aspects of the rectum. The excavation or pit thus formed is known as the rectovesical pouch, which descends to a point within 1 cm. of the base of the prostate. When the rectum is

filled or the bladder distended, two peritoneal folds can be found passing from the lateral walls of the bladder to the rectum. These rectovesical ligaments form the lateral boundaries of the pelvic peritoneal pouch and are analogous, morphologically, with the uterosacral ligaments in the female.

Metastatic deposits in the cul-de-sac under ordinary circumstances can be palpated through the anterior or anterolateral wall of the rectum according to their anatomic distribution. Growths the size of a pea may be felt occasionally, although it has been our experience that the size as estimated by digital examination of the rectum is not always verified by that found at operation or necropsy. Coalescence of these deposits, which vary in shape, size, and number, produces a ledge spoken of as the 'rectal shelf'. In such a case digital examination of the rectum elicits a nodule or growth anterior or anterolateral to the rectal wall and approximately 2 to 4 inches above the anal margin in the female or  $\frac{1}{2}$  inch above the prostate in the male. As would be expected, it is of hard consistency and not tender. Ordinarily a sulcus can be felt between the mass and the upper rounded border of the prostate. The mucosa of the rectum, being uninvolved, is freely movable over the growth, thus, it should be remembered, is the main feature in distinguishing it from primary carcinoma of the rectum. Increase in size and extent may readily cause impingement on the anterior rectal wall, in which case the examining finger encounters backward displacement of the rectum by a mass anterior to, and outside of, its wall. Occasionally the metastatic process encircles

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FIG 1 Sagittal section of normal male and female pelvis

the rectum so as to cause occlusion, either partial or complete. It is quite possible, as cited by Kappeler,<sup>27</sup> for the process to infiltrate the rectal wall proper and cause fixation of the mucous membrane, under which circumstance it would not be unlikely that the resultant proliferating changes might be confused with a primary carcinoma, yet in our series of cases, even those presenting almost complete obstruction, the mucosa was movable and free of ulceration.

Search of the literature reveals that Hermann Strauss<sup>39</sup> in 1895 reported a case of gastric carcinoma with metastasis to the pouch of Douglas. Four years later, 2 additional cases were cited and mention was made that such metastasis may not only be early, but may be the only manifestation.<sup>40</sup> In 1908, Schnitzler<sup>37</sup> described 11 cases, in one of which the pancreas was the primary site. Worthy of mention is this quotation from his original German "The important feature was that all these patients consulted the doctor for symptoms produced by the metastasis, without having the slightest suspicion of the presence of the primary growth." In his report, this investigator remarked that in 1 case he mis-

took the tumor for a primary rectal growth and performed a radical sacral extirpation. Examination of the patient, who survived six months, revealed a gastric carcinoma of long latency. Payr<sup>36</sup> described a case in which he performed a colostomy for rectal stenosis due to periproctitic and parametric induration. The patient died of peritonitis, autopsy revealed a gastric carcinoma and the presence of perirectal metastasis of the infiltrative type. Other cases were reported simultaneously by Bensaude and Okenczyk,<sup>7</sup> Brosch,<sup>11</sup> Chiari,<sup>15</sup> Kappeler,<sup>27</sup> Kaufmann,<sup>28</sup> Kelling,<sup>30</sup> Orth,<sup>35</sup> and Toyosumi.<sup>42</sup> Blumer<sup>8</sup> in 1909 reviewed the literature in addition to his report of 2 cases—1 primary in the gallbladder and the other in the stomach. Because of his excellent description, this extrarectal site has been referred to frequently as "Blumer's shelf." Since that time few reports have been published,<sup>13,14,22,26,29,34</sup> although several quotations or reviews are to be found.<sup>1,2,17,18,20,25,32,45,46</sup>

Judging from the available literature at hand, as well as our own series of cases, the stomach is by far the most common primary site affected. Feldner<sup>20</sup> is quoted as saying that metastasis to Douglas'

TABLE 1.—CASES REPORTED TO DATE

Author	Primary Site	Number of Cases
Straus <sup>10</sup>	Stomach	3
Blumer <sup>11</sup>	Stomach	18
	Gallbladder	1
Orth <sup>12</sup>	Stomach	1
Kelly and Burnam <sup>13</sup>	Kidney	1
Schnitzler <sup>14</sup>	Stomach	10
	Pancreas	1
Kelling <sup>15</sup>	Stomach	1
Kappeler <sup>17</sup>	Stomach	3
Papp <sup>18</sup>	Stomach	1
Chiaris <sup>14</sup>	Stomach	1
Handley <sup>19</sup>	Breast	3
Jackson <sup>20</sup>	Stomach	1
Carnett <sup>21</sup>	Breast	1
Keith <sup>22</sup>	Stomach	1
Toyotomi <sup>23</sup>	Stomach	1
Iraiger <sup>24</sup>	Stomach	1
Schofield <sup>25</sup>	Stomach	1
Melchior <sup>26</sup>	Esophagus	1
	Stomach	1
	Breast	1
Sullivan <sup>27</sup>	Stomach	4
	Breast	1
	Cecum	1
	Pancreas	1
	Gallbladder	1
Bacon <sup>28</sup>	Retroperitoneum	1
	Stomach	8
	Ascending colon	2
	Pancreas	2
	Breast	1
	Retroperitoneum	1
	Common bile duct	1
Daniel <sup>29</sup>	Kidney	1
	Stomach	2
	Pancreas	1
Vier <sup>30</sup>	Adrenal	1
	Stomach	1

pouch occurs in 20 per cent of gastric carcinomas and in 18 per cent of gall bladder carcinomas. Such frequency we have been unable to confirm

While there is no conclusive proof as to the mode of spread, it seems pertinent to review briefly the opinions and investigations of various workers. By metastasis we understand the dissemination of a malignant growth either by continuous extension or tumor-cell emboli. Many writers lean toward dissemination by the hematogenic route, which, it is agreed, is the usual means of spread in the case of sarcoma. As previously stated by the author,<sup>2,4,5</sup> it is recognized that an implantation type of cancer does exist, several authentic cases of which have been reported<sup>18,21,24,31</sup>

The occurrence of carcinomatous implants in the abdomen, especially in advanced cases, is not an uncommon feature. The explanation first mentioned by Schnitzler is today almost universally accepted—that pelvic involvement from a malignant stomach or gallbladder occurs by fragments of cancerous tissue gravi-

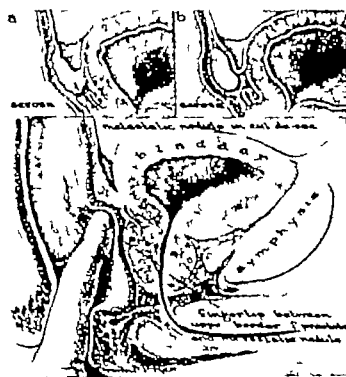


FIG. 2 Examining finger against extrarectal metastatic process. The mucous membrane is freely movable over the growth. a. Supra-peritoneal metastatic growth as seen in case of carcinoma. b. Infraperitoneal metastatic growth as seen in sarcoma.

tating to the pouch. Eusterman and Balfour<sup>18</sup> have said that it would seem that when the tumor reaches the gastric serosal layer, carcinoma cells are mechanically carried to the pelvis and there occasionally take root. In fact, they state

Although the gastrocolic and greater omentums are favorite sites, the most common situation is the pelvic peritoneum'. This however while quite possible and highly probable, does not explain entirely the occurrence of an isolated metastatic pelvic deposit in the absence of other visible and palpable implants. In two instances, sections of the smaller retroperitoneal lymphatics in the lower dorsal and lumbar regions presented evidence of malignant invasions. Some investigators contend that lymphatic embolism and continuous permeation are commonly associated. Ewing<sup>19</sup> considers it probable that the rapidly growing epidermoid and glandular carcinomas disseminate chiefly by lymphatic embolism, while the slowly growing and recurrent tumors often extend by continuous permeation. Retrograde flow through lymphatic and blood channels is a subject that always invites discussion. Or

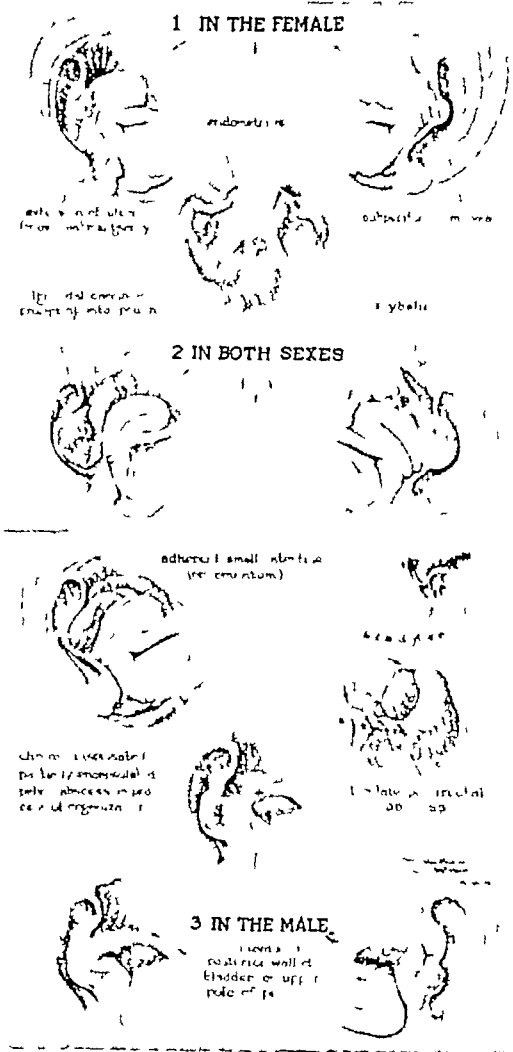


FIG 3 Differential diagnoses, showing extra-rectal lesions other than Blumer shelf metastatic processes

gans in which there is a normal venous pulse, or where there occurs violent expiration or increase of intrathoracic pressure would be the most common sites. Occlusion of the main lymphatic or venous channels gives rise to disordered function, as a result of which retrograde flow, even though a slow process, may supervene. Examples of retrograde venous and lymphatic flow have been cited by Heller, Bonome, Arnold, Ernst and von Recklinghausen, Vogel, Poncet, Most, and Troisier.

Walther<sup>43</sup> is of the belief that a large number of the cases with alleged retrograde lymph node metastasis are in-

stances of continuous dissemination, because in the majority of his cases he was able to demonstrate that diseased lymph nodes that were not in the vicinity of the primary growth were regional metastases of an organ that had become involved by the hematogenic route.

Regarding breast carcinoma, Sampson Handley<sup>22</sup> said "It must never be forgotten that the first sign of epigastric invasion may be found not in the epigastric region, but in the pelvis." He maintains that in nearly every case dissemination in the abdominal cavity occurs by transcelomic spread, the secondary deposits arising from gravitations of cancerous particles into the pelvis, that in the late stage the whole pelvis may be filled with cancer, and its contents matted together. Carnett<sup>12,14</sup> concurred in the view that lymphatic permeation is a common process in the liver and that in other parts, especially the deeper or pelvic parts of the abdomen, lymphatic permeation may begin around implanted nodules. He differed, however, in that he believed widespread lymphatic permeation may occur in the abdomen in the absence of implants.

There are a number of conditions that may simulate a metastatic growth in this locality. Among them should be mentioned adherent coils of small intestine and omentum encountered in certain types of peritonitis, especially the diffuse tuberculous variety, scybalum in the small bowel, subperitoneal myoma, sigmoidal carcinoma prolapsing into the pouch, and chronic inspissated, partially encapsulated pelvic abscess in the process of organization, carcinoma of the upper pole of the prostate or of the posterior bladder wall infiltrating the rectum, a loculated pelvirectal abscess, a hypertrophied valve of Houston, endometriosis of the rectovaginal septum or distal sigmoid, and extension from an ovarian or uterine malignancy. There should arise no difficulty in distinguishing a primary rectal carcinoma, except in rare instances where the metastatic process infiltrates the rectal wall.

During the five-year period ending

CHART — TWENTY TWO CASES TREATED OVER FIVE-YEAR PERIOD ENDING DECEMBER, 1939

Initials M. St. P.	Age	Sex	Race	Salient Symptom	Provisional Diagnosis	Digital Examination of Rectum: (Extra-rectal Lesion)	Primary Site	Verified by	Type of Tumor	Grade
W. C.	67	M	B	pain in stomach, nausea and vomiting, progressive constipation, loss of weight	ca. stomach	large hard nodular mass anterior and outside rectal wall	stomach	necropsy	adenocarcinoma	III
W. C.	67	M	B	scarcely about "milkiness," weak nose, and loss of weight	ca. rectum	hard nodular mass size of tangerine anterior to and encroaching on rec- tum	stomach	necropsy	adenocarcinoma	III
W. H.	63	M	W	pain in epigastrium worse after eating	ca. stomach	three nodular growths anterior to rec- tum, hard and immovable	stomach	necropsy	adenocarcinoma	IV
A. O.	39	M	W	abdominal pain, difficulty in swallow- ing, weight in pelvis	?	two hard masses size of walnut an- terior to rectum	stomach	necropsy	adenocarcinoma	IV
J. C.	47	M	W	epigastric pain, constipation, loss of weight	ca. stomach	large nodular mass size of flat anterior to rectum	stomach	necropsy	adenocarcinoma	IV
P. D.	60	M	W	increasing constipation, vomiting oc- casional diarrhea, loss of weight	?	large, hard nodular mass anterior to rectum	stomach	operation	adenocarcinoma	IV
N. F.	55	M	W	intermittent constipation and diar- rhea, pain in lower abdomen	ca. rectum	hard collar like nodular mass con- stricting rectum, partial obstruc- tion	stomach	operation	adenocarcinoma	IV
A. B.	43	M	W	dull pain in stomach, worse after meals, some vomiting, tarry stools	ca. rectum	hard constricting process outside rec- tum, M M nonadherent	stomach	operation	adenocarcinoma	III
J. B.	61	M	W	dull agonizing pain about navel, black blood in stool, loss of weight	ca. rectum	semicircular mass, not rectum hard and nodular, M M movable	stomach	operation	adenocarcinoma	III
H. L.	69	F	W	pain after eating, loss of weight, lum- bar pain	ca. prostate	small mass size of 1/2 M movable wall of rectum.	stomach	operation	adenocarcinoma	IV
H. C.	62	M	B	abdominal pain, constipation, heavy ness in rectum	ca. rectum	large mass anterior to rectum causing encroachment, M M movable	pancreas	necropsy	adenocarcinoma	III
J. O'H.	70	M	W	dull pain worse after meals, loss of weight	ca. rectum	mass size of egg anterior to rectal wall M M freely movable	pancreas	necropsy	adenocarcinoma	III
J. W.	40	M	B	abdominal pain, tenesmus, loss of weight	ca. prostate	honeycomb nodular mass causing marked constriction of rectum, M M movable	pancreas	operation	adenocarcinoma	IV
M. C.	58	F	B	abdominal pain, progressive constipa- tion, loss of weight	ca. rectum ?	discrete metastatic nodules in cel- lular	common duct	autopsy	adenocarcinoma	IV
E. S.	53	F	B	mass in abdomen	ca. rectum ?	large fixed mass anterior to rectal wall	retro- peritoneum	autopsy	neutrogenic sarcoma	IV
D. McC.	50	M	W	lower quadrant pain, loss of weight	ca. rectum	nodular size of hickory nut anterior to rectum	ascending colon	operation	adenocarcinoma	IV
J. L.	48	M	W	costal pain, constipation, loss of weight	ca. prostate	large nodular fixed mass anterior to rectum causing partial obstruction	ascending colon	autopsy	adenocarcinoma (colloid variety)	III
B. B.	59	M	B	abdominal pain, frequent desire for stool	ca. rectum	two nodules size of large cherry an- terior and to right of rectum	ascending colon	biopsy	adenocarcinoma	IV
A. M.	55	F	W	dysphagia, progressive constipation	ca. rectum ?	nodular mass left anterior to rectum, M M slightly adherent, not ulcer ated	esophagus	necropsy	adenocarcinoma	III
H. O.	37	F	W	egg sized mass in breast, constipation	ca. breast and rectum	nodules palpable anterior to rectal wall	breast	necropsy	adenocarcinoma	IV
C. P.	63	F	W	hump in breast, increasing constipa- tion, pain on defecation, loss of weight	dual malignancy	small collar like mass constricting rectum, hard and irregular	breast	biopsy	adenocarcinoma	IV
C. O.	53	M	W	intermittent pain in right lower quad- rant	?	hard collar like mass constricting rec- tum, discrete nodules	kidney	autopsy	adenocarcinoma	IV

# DIABETIC EXPERIMENTS

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THESE experiments began with studies of the unsettled problem of the tolerance and toxicity of insulin in various animal species. The observations made during the first few years were published only as an abstract in 1932.<sup>1</sup> The later reports are now being published in several papers,<sup>2</sup> to which reference must be made for details, since only a brief summary and conclusions can be presented here. The question of the physiologic action of insulin, including a possible toxicity of high doses apart from mere hypoglycemia, has a practical relation not only to diabetic treatment but even more directly to its recent use in psychiatric treatment.

It should be noted at the outset that the production of hunger either by insulin or by hypoglycemia is by no means as invariable as commonly supposed in either man or animals. Differences occur according to species, dosage, and other conditions. Experiments are divisible into those with spontaneous eating and those with artificial administration of glucose, and in the former group the tolerance of insulin is governed chiefly by the effect on appetite.

Cats seem to show considerable individual variations, but frequently rather small doses of insulin cause anorexia and vomiting and consequent hypoglycemic attacks. Increased gastric contractions and secretion were demonstrated in dogs by Bulato and Carlson<sup>3</sup> and La Barre<sup>4</sup> with doses between 20 and 40 units. Doses amounting to hundreds or thousands of units cause depression and vomiting, independent of hypoglycemia, but the precise limits of tolerance have not been established. Considerable doses of insulin in proportion to weight are tolerated by rabbits, since a 2-Kg rabbit shows no more than a diminution of appetite and resists hypoglycemia with doses of 50 to 75 units subcutaneously. Higher doses lead to loss of appetite and fatal hypo-

glycemia. Rats and mice, which are known to be sensitive to very small insulin doses in the fasting state, have a higher tolerance than any other known mammals when fed, because they are least subject to anorexia. Thus a 20-Gm mouse may tolerate 20 units of insulin. McIntyre and Burke<sup>5</sup> did not reach the maximum limit of tolerance in rats because these animals, weighing from 100 to 250 Gm, readily endure 300 to 1,000 units of insulin without dangerous symptoms. The literature assigns to some varieties of birds a still higher rank, by reason not only of their practically unlimited insulin tolerance with feeding but also their remarkable insensitiveness during fasting. These graded differences between species may possibly to some extent be conformable with Sakel's suggestions connecting insulin action with the phylogeny of the nervous system.

Human diabetics are known to need and tolerate very high insulin dosage in certain special states, such as acidosis. The giving of 750 to 1,000 units in a single injection in the present work<sup>2</sup> seems to be the highest recorded dose for an ordinary diabetic not in a specially resistant state. It did not cause anorexia or dangerous symptoms and was readily antidoted with carbohydrate. Other observations, especially in tuberculous patients, indicate a wide range of tolerance in human subjects, so that in some individuals comparatively small doses produce anorexia and malaise and large doses might well be dangerous. The danger arising in psychiatric treatment, when profound hypoglycemia is intentionally protracted over a considerable time, is different in nature, although Sakel hypothetically assumes a physiologic and toxic action of insulin apart from hypoglycemia. This point deserves further investigation, for if the clinical benefit is due to hypoglycemia there may be ways of obtaining

it with smaller and less dangerous insulin doses than used by Sakel, while if it is due to a specific action of insulin independent of hypoglycemia there may be ways of giving larger doses with less of the hypoglycemic danger.

When hypoglycemia is not prevented by the amount of food eaten spontaneously, it is a natural step to administer glucose parenterally. The deaths that occur when certain limits of dosage are exceeded must then be attributed to either the insulin or the glucose. Glucose injections can be injurious through osmotic and possibly also through toxic action. Previous publications purporting to prove the nontoxicity of insulin<sup>6</sup> are flagrantly deficient and erroneous. Some of the facts elicited by the experiments<sup>2</sup> may be summarized as follows.

A. Very small glucose injections, ranging under different conditions from a fraction of a gram to a few grams, suffice for the temporary antidoting of even the largest insulin doses, amounting to hundreds or thousands of units.

B. The effect of the largest insulin doses is only to a slight extent an intensification of insulin action, as judged by the quantity of glucose required for antidoting from hour to hour, but is pre-eminently a prolongation of the time, so that repeated administrations of glucose may be necessary to prevent fatal hypoglycemia more than forty-eight hours after a single subcutaneous insulin injection.

C. When one of these large insulin doses is injected in a leg, and amputation performed after an interval of ten hours or longer, the course of the symptoms is not ameliorated and the animal's life is not saved. The prolonged effects of the dose, therefore, represent a true constitutional hyperinsulinism, not a mere delay of absorption or local retention of insulin.

D. There is a limit to the insulin tolerance of different animal species even when hypoglycemia is prevented. A dose of 200 to 250 units subcutaneously is regularly fatal to a 2-Kg rabbit. Intravenous administration being less effective from every standpoint, there may be death from a single sudden injection of

this amount, or a slightly larger dose may be required. An average-sized cat can tolerate between 1,000 and 1,200 units subcutaneously, but dies from larger doses. A 14-Kg dog survived 2,000 units subcutaneously, but other dogs have died from somewhat similar amounts. The fatality following doses above the limit for each species is inevitable and not preventable by any treatment yet known. The possible causes are (1) the demand created for a fatal quantity of glucose (2) a specific toxic action of the insulin itself.

E. In addition to the immediate evidences of the toxicity of insulin, notice may be taken of the aftereffects as, for example, in cats. Doses that are non-fatal in the acute sense sometimes lead to death after a number of days. Other wise, the animals may for weeks exhibit poor appetite, weakness, unsteady or staggering gait, and more or less stupidity or mental alteration. These apparent indications of a severe shock to the nervous system are in harmony with Sakel's hypothesis of insulin action, and suggest further study of the question whether hypoglycemia or massive insulin dosage *per se* is the more important factor in the treatment of psychoses.

F. Very few glycogen analyses were possible, but the few made seem to indicate extreme glycogen poverty with the high insulin doses, in contrast to the glycogen richness that is the rule when glucose alone is given. If this result is confirmed, the disappearance of glycogen must be interpreted not as a defense against hypoglycemia (which is not allowed to occur), but rather as a direct action of the maximal insulin doses in breaking down glycogen or inhibiting glycogen formation, even in the presence of marked hyperglycemia.

G. Large subcutaneous glucose injections may concentrate the blood if the solutions are strongly hypertonic, or if the solutions are dilute they may cause extreme hydremia, with reduction of the corpuscle count by 50 per cent or more. In either case the result is oliguria, either in an absolute sense or in proportion to



the amount of fluid injected. It is not true that intravenous glucose injections reproduce the polyuria of diabetes, because the diuresis is due to gross osmotic disturbance and hydremia such as are not found in diabetes. Typical diabetic polyuria with normal or even increased blood concentration stands in antithesis to the combination of hydremia and oliguria which is the typical effect of glucose in normal animals. This contrast, pointed out long ago,<sup>7</sup> is seen in intensified form in the present observations, and it remains as one of the unsolved and apparently fundamental problems of diabetes.

Some results of observations with protamine zinc insulin in various species may be summarized as follows:

A Both regular insulin and protamine insulin have far lower potency (as judged both by the quantity of glucose required for antidoting and by the toxic effects) when given intravenously than subcutaneously. But especially when the doses are large, the more prolonged action of protamine as compared with regular insulin is demonstrable also intravenously, though it is far shorter than with the subcutaneous injection.

B Protamine insulin is somewhat more toxic than regular insulin, even in its early effects, e.g., rabbits or cats die with somewhat smaller doses in the early stages, and rats, which tolerate hundreds of units of regular insulin, promptly develop anorexia as a typical symptom of insulin intoxication with doses of 60 units or less of protamine insulin, and their lives can then not be saved by any means whatever. The principal cause of fatality, however, consists in the creation of a demand for fatal quantities of glucose, by reason of the excessively prolonged effect of the protamine insulin. A dose of 10 or 15 units of protamine insulin is harmless to a rat which can eat *ad libitum*, and MacKay and Callaway<sup>8</sup> have made the interesting observation that daily repetition of such doses results in marked obesity. In fasting rats, however, one such small dose is regularly fatal. There is no sign of injury from

the insulin, and the condition may remain good for twenty-four hours or longer, merely with the aid of occasional glucose injections to prevent hypoglycemia. But the relentless persistence of the effect of the small dose of insulin is such that the glucose injections may have to be continued for three to five days, with the result that death occurs not only in the insulin animals but also in controls receiving the same quantities of glucose. The longest effect of protamine insulin in any animal, with recovery, was observed in a rabbit, in which hypoglycemic attacks occurred for one week after a single subcutaneous injection of 200 units.

C It was previously remarked that large doses differ from small doses of regular insulin rather in duration than in intensity of effect. The long duration of the action of protamine insulin, far more marked in animals than in man, is responsible for the fantastically larger quantity of glucose required for antidoting, unit for unit, as compared with regular insulin. This time factor has not been adequately considered in the attempts of most authors to establish fixed insulin-glucose equivalents, and it alone probably suffices to invalidate all such calculations. In addition, various pathologic states are known to cause enormous variations in the effectiveness of insulin. Furthermore, there has never been any proof that insulin is concerned directly and solely with glucose metabolism, and the clinical proofs of the influence of the total metabolism and body weight upon the insulin requirement of diabetics are too plain and positive to be denied. It would appear that knowledge of these facts should have forestalled attempts to establish fixed insulin-glucose ratios.

D Crystalline zinc insulin (Sahyun) proved to be intermediate in duration, toxicity, and other effects between protamine and regular insulin, in agreement with clinical observations.

E When injections are made into a leg, the effects of protamine insulin can be terminated by amputation of the leg. This result, which was not obtainable with regular insulin even after compara-

tively short intervals, is obtained with protamine insulin over much longer periods, up to sixty-two hours. With protamine insulin, therefore, the element of constitutional hyperinsulinism seems to be less prominent, and the chief cause of the extremely prolonged effects consists in retention at the site of injection. Correspondingly, the very prolonged hypoglycemic effects of protamine insulin can be approximately reproduced by successive injections of fractional quantities of regular insulin. These findings harmonize with and explain the clinically recognized fact that the cumulative action of protamine insulin may extend over at least three days, and is greatest with the largest doses. It is possible that if patients were given still larger doses the effects might be demonstrable over a still longer period.

F These facts regarding hypoglycemia do not warrant a conclusion that the great surplus of insulin is lying idle at the site of injection, because the effects of large doses, in the form of anorexia, depression, and nonhypoglycemic death, are not duplicated by small doses. Furthermore, the toxic symptoms seem to occur practically as early with protamine as with regular insulin, and the hypoglycemic action in early stages is not less violent, even though continuing so much longer. The constitutional factor, therefore, cannot be ignored, and further investigation of the comparative effects of small and large doses of ordinary and protamine insulin should be instructive.

Experiments of this type may also add to the information concerning interrelations of glands. For example, since tiny quantities of glucose suffice for the temporary antidoting of even the largest insulin doses, it is interesting to try the effect of epinephrine. The trials show that the antidoting action of epinephrine is slight and brief, and repeated subcutaneous or intraperitoneal injections fail to protect like repeated doses of glucose. I had occasion years ago to oppose the pluriglandular theories of diabetes, which were then almost universally accepted and associated the adrenal me-

dulla with the etiology of diabetes. Although this hypothesis has been sufficiently disproved and although the only valid association of the adrenals with diabetes has been shown to be through the cortex, the discovery of insulin and the temporary antidoting of small insulin doses by epinephrine has kept alive the idea of an antagonism between the two substances or between the pancreas and the adrenal medulla. It seems evident, however, that epinephrine has one specific function, namely the augmentation of sympathetic activity, and that a mobilization of liver glycogen is merely incidental to this function. The supposed antagonism to insulin is, therefore, only superficial and accidental, not specific or fundamental. Years ago<sup>10</sup> I pointed out that when an animal is depancreatized so far that the removal of a fraction of a gram of additional pancreatic tissue will produce diabetes, no amount or repetition of epinephrine doses will bring on diabetes, also if an animal is mildly diabetic, epinephrine still causes only a temporary glycosuria, and repeated doses fail to make the diabetes severe, although a brief period of mere carbohydrate excess will induce the severe stage. These experiments, together with the negative results of extirpation of the adrenal medulla as proved by several investigators, sufficiently demonstrate the absence of true antagonism between epinephrine and insulin or between the adrenal medulla and the islands of Langerhans.

The thyroid is not established as having any diabetogenic action beyond intoxication and stimulation of total metabolism. Obviously, this action can greatly aggravate an existing or latent diabetes, but it has never been proved to produce diabetes in a nondiabetic organism. In particular, a dog depancreatized almost to the point of diabetes is not made diabetic by any amount of thyroid feeding. Since the function of the parathyroids has been elucidated, their previously assumed connection with diabetes seems to have been forgotten. The posterior pituitary lobe, which was confidently included in the pluriglandular speculations and diagrams,

can be dismissed all the more positively, since Young<sup>11</sup> has demonstrated the fallacy of interpreting the hyperglycemic action of its extract as partaking of the nature of diabetes

These statements, which are mostly a simple repetition of what I published years ago, are reinforced by the disclosure of a gland that appears to meet all the above tests of antagonism. Houssay's discovery of the powerful arrest of pancreatic diabetes by removal of the anterior pituitary is now classic. After several workers had obtained either brief or chronic glycosuria by injections of anterior pituitary extracts in normal animals, a further brilliant triumph was achieved by Young<sup>10</sup> in the production of permanent diabetes by prolonged injections of anterior pituitary material. Three years ago, through the cooperation of H. M. Evans at a time when I was cut off from all facilities for dog experiments, I provided for tests with partial pancreatectomy. The amount of pancreatic tissue removed was far short of that required for producing diabetes; animals thus prepared have only a trivial reduction of glucose tolerance and can never be made diabetic with any amount or duration of carbohydrate feeding. Dr. Evans readily succeeded in making these animals permanently diabetic by injections of anterior pituitary extract.<sup>12</sup> I have reproduced these results in a few experiments that I have recently managed to perform under limited conditions, by the use of an anterior pituitary emulsion as described by Young (mostly prepared by Dr. Asher Yaguda, of Newark). Difficulties, such as the long time required under the Young plan and the total resistance of some dogs as mentioned by some workers, seem to be obviated by this method. Diabetes is not only obtained more quickly and surely, but it may also, by appropriate means, be made to imitate more closely the different grades of human diabetes. The tendency of the animals to thrive and actually gain in weight and vigor under the pituitary injections still conforms to Young's description at least in the early stages, and in this respect con-

trasts quite sharply with simple pancreatic diabetes.

Since 1913 I have tried to insist upon the distinction between the disease diabetes and the symptom glycosuria (or hyperglycemia), as prerequisite to clear thinking on fundamental diabetic problems. Obviously, diabetic patients and animals may often be free from glycosuria or hyperglycemia, while on the other hand most forms of glycosuria and hyperglycemia are not diabetic. Except for the usage of "adrenal diabetes" and similar indefensible phraseology, the entire mass of pluriglandular errors might perhaps have been avoided. It is possible that attention, which I failed to gain, may now be given to Young, who stresses this same point and who succeeds in establishing the difference between the mere hyperglycemic action of some pituitary preparations and the true diabetogenic action of others.

The resistance of pituitary-injected animals to huge insulin doses, such as have been used in some "insulin resistant" diabetic cases, is still under investigation and I hope to publish further experiments along the lines described in the earlier part of this paper. A hopeful sign of the present time is that all the scientists who have made the recent discoveries concerning glandular interrelations have confined themselves very carefully to scientific methods and conclusions. It is to be hoped that clinicians will imitate this conservatism, by refraining from rash guesses concerning pancreatic and hypophyseal factors in diabetes, until definite evidence is available. The former endocrinologic fantasies, and the vagaries of one-sided fat or carbohydrate diets, illustrate the amazingly wide acceptance that can be gained by unproved assertions. By adherence to scientific methods it is possible that a new clinical era will be opened up by the splendid laboratory discoveries centering about the anterior hypophysis. On the other hand, the possibility still remains that the hypophysis may be strictly normal in the great mass of clinical diabetic cases.

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## A CHILD BORN TO A CHILD

Dr Martin J Backenstoe, a former Pennsylvania physician now living at Manhattan Beach, in California recently visited the maternity hospital in Lima Peru and saw the little mother of six or seven years of age reported in press dispatches and her baby. He wrote an account of his visit to his son, Gerald S Backenstoe M.D., of Etnaus, Pa an active member of the Lehigh County Medical Society who gave permission for its publication in the September issue of the county society's bulletin. Dr Martin J Backenstoe is an affiliate member. The letter is reproduced in the Pennsylvania Medical Journal through the kindness of J Frederick Dreyer editor of the *Lehigh County Medical Bulletin*.

The newspapers chronicled the event discussed in Dr Backenstoe's letter but most physicians dismissed it as another one of those things which happen (or are said to happen) on the other side of the universe. The letter runs thus "With the thought that this letter might be interesting to physicians back in Pennsylvania I beg to say that I succeeded yesterday in visiting and casually examining the subject of the news report A Child Born to a Child at Lima Peru. My itinerary of South America allowed only a few days stop here. This district is probably the high spot of ancient South American history and, I am now ready to say will probably be a record spot for the ages in the humanities of our days.

"The state quite properly had taken charge of the situation and strictly forbade all general visitation. Being a foreigner and vouched for American medico I was heartily accorded permission and accompanied by the very courteous and I judged, expertly competent medicos, walked into the orderly room of this patient in the Lima Maternity Hospital with 400 beds 30 physicians, and 25 average daily confinements.

"There she is, said the doctor pointing to a little girl walking across the room. My reaction, not expressed of course was Crazy—Impossible. Man can pass through the eye of a needle, I now do believe.

"Residing in the Andean foothills and being Indian is all the history available of the parent

age. Mixed Indian is the hospital designation.

Very early menstruation and also very early sexual congress are noted on the record. Menstruation never interrupted and all regular all along. In appearance a robust, heavy framed six year-old. Milk teeth all intact and in good condition. First incisor loose and about ready to drop out.

Small cylinder-shaped pendulous breasts well filled with milk. Nursing allowed every morning only—a fine amply equipped wet nurse furnishing additional nourishment. Wide pelvic brim evident—narrow pelvic outlet recorded. Heavy flabby striated abdominal muscles—the telltale cesarean scar small and nicely healed. This apparently entirely innocent child after nursing and fondling her bodily child every morning is busy playing with one or more of her neatly arranged shelf full of dolls.

Age as reported (no record) given as 5 years, 6 months. Age as credited on record as probable 6 years 6 months. Age as I would guess, surely less than 8 years. Height 1 meter 10 mm. Weight 65 pounds.

Cesarean done supposedly at onset of eighth monthly period. Baby—fully and finely developed and formed. Head full of long black hair. Apparently of normal mentality—nurses ravenously. Weight at birth—2 Kg. 700 Gm. Weight at 2 months—4 Kg. 620 Gm.

I was shown films of present pelvic condition of patient and other films of children of same accepted age. Trochanteric changes probably resorption, explain apparent epiphyseal detachment or separation. No history of any sort as to father of this child.

I did not have the heart to inquire "Why no baby in utero pictures? Am willing to concede expense as the explanation that the proper appraisal of the situation was not made in time.

Naturally entirely skeptical as I was before I am now very glad to have seen and believe and so say to you my medical brothers. Mark this down on memory a tablet as a new and recorded event—definitely true.

MARTIN J BACKENSTOE M D

Lima, Peru

A report of the New York City Department of Health reveals but 1 case of botulism reported for seven million people over a period of seven years, and but 2 cases of pellagra. There was no smallpox for a period of five years, 1933-1937 during which time there were 27 cases of leprosy

"If we could only discover why so many people especially those of the fair sex, derive so much pleasure from the discussion of their operations with their neighbors we should be making one of the great contributions to the principles and practice of surgery

# NEW YORK STATE PROGRAM FOR CANCER CONTROL

EDWARD S. GODFREY, JR., M.D., *Commissioner of Health*

CANCER as a public health problem is not a new venture for the State of New York. In 1898 the state legislature granted the sum of \$10,000 for the study of the cancer problem, and from this small beginning has developed the State Institute for the Study of Malignant Diseases in Buffalo, New York, treating over 5,000 patients annually. During the first twelve years of its existence, this Institute confined its efforts to laboratory research. At the end of that period it was decided to extend the research to include the clinical aspects of cancer, and especially the results of treatment by radiotherapy. A twenty-two-bed hospital adjoining the laboratory was erected, and to this institution any doctor in the state could send a patient for diagnosis and treatment without charge.

The first radium that came into the possession of the Institute was a gift of 50 milligrams, which was later supplemented by a State purchase of some eight grams, one of the largest accumulations in any institution in this country.

During the legislative session of 1937, a bill was introduced in the state legislature providing for the erection of a 100-bed hospital for cancer cases, in connection with the Institute, and provision was made for the purchase of sites for two additional hospitals. The primary motivation of this was the result of the overcrowded condition existing in the clinic of the Buffalo Institute, which had come to the attention of several members of the legislature. In view of the fact that it was not certain that the building of state hospitals devoted solely to the treatment of cancer was the best answer to the problem, it was deemed wise, while expanding the facilities of the Institute by the addition of 100 beds, to submit the general question of cancer control to a legislative commission that would study

it and make recommendations for legislation at the next annual session.

This legislation was passed, the new hospital addition will be opened in November, and the Commission, consisting of three assemblymen, three senators, and three members appointed by the Governor, was organized in July, 1937, under the chairmanship of Assemblyman Frank A. Gugino of Buffalo, who sponsored the original bill. It was found impossible to make a complete report for the 1938 legislature and the Commission was continued for another year, the only changes being in certain legislative members. The physicians appointed by the Governor were Dr. James Ewing, of New York, Dr. Floyd Winslow, of Rochester, and the State Health Commissioner.

A survey was planned early in the life of the Commission, and Dr. R. S. Ferguson, of the Memorial Hospital, New York City, was appointed its director. The facts brought out in this survey and the recommendations of the Commission are contained in the report of the Commission that was made to the 1939 legislature. The bill recommended was passed substantially as introduced, with the exception that the initial appropriation was reduced from \$50,000 to \$35,000, and the reporting that the Commission recommended was limited to New York State, exclusive of New York City.

In the meantime, in 1931 the Institute for the Study of Malignant Diseases had been transferred to the State Department of Health, in accordance with the general plan of State reorganization, and the same law created the Division of Cancer Control, designed to carry out some of the extramural functions that are believed to be important in connection with the control of this disease. The director of the Institute for the Study of Malignant Diseases was made the director of the Divi-

*Read at the General Session on Cancer Control, Annual Convention, American Public Health Association, Pittsburgh, Pennsylvania, October 19, 1939*

sion of Cancer Control, and the position of assistant director to carry out the extramural functions was created.

Unfortunately, since the headquarters of this Division were in Buffalo, three hundred miles distant from the central office of the department, and since the administration of the Institute is a full time job, and finally since the extramural and intramural services were not clearly separated, the field services were severely hampered. The Commission recognized this, and the new law specifically provides that the director of the Division shall not be the director of the Institute.

The law provided for a director and for the reporting of cancer and other malignant tumors in the state, exclusive of New York City. Such reports must be made by physicians and hospitals, and pathologic laboratories are required to report any specimens showing malignancy. A previous requirement of the Sanitary Code provides that representative specimens, or sections for microscopic examination, of tissue removed at operation or at necropsy which require laboratory examination as an aid in the diagnosis, prevention, or treatment of disease or to determine the cause of death shall be submitted to an approved laboratory, to the State Laboratory at Albany, or to the State Institute at Buffalo. The approval of these laboratories is based upon a careful appraisal of them by the Division of Laboratories and Research. The law defines the functions, aims, and purposes of the reconstituted Division as a part of the State Department of Health, with its offices in the central office of the department in Albany.

The Commissioner of Health has appointed an advisory committee, composed of physicians representing different fields. Two of these are world known pathologists, Dr. James Ewing and Dr. Francis Carter Wood. The third is Dr. John L. Morton, a widely known surgeon and student of the pathology of clinical cancer—the professor of surgery in the University of Rochester. The State Medical Society is represented by Dr. Thomas P. Farrar, a gynecologist familiar with

cancer problems as it affects the part to the physician. The fifth member is the dean of the Albany Medical College Dr. Robert S. Cunningham. It seems certain that a committee of such highly qualified men will be of great assistance in outlining the policies of the new Division and will be able to bring to it a wealth of advice on the varied aspects of this disease. It is to be noted that this advisory committee is not required by the law.

Reporting of cancer will be accomplished by cards similar to those used for communicable diseases. They are not complicated, yet they will provide considerable information, enabling a comprehensive statistical study. These cards will be furnished the physicians. For the hospitals and laboratories there will be a more detailed report, giving additional important information concerning each patient. The district health officer will play an important role in obtaining these records. They will pass through his office, and will be forwarded when fully completed to the central office. Duplication is anticipated, but wherever this occurs it may add desirable information. Reporting should in the course of time make available to the medical profession accurate information instead of uncertain estimations.

1. The true magnitude of the cancer problem.

2. The relative incidence of cancer in the various sections of the state and among various social and economic groups.

3. The relation between cancer and such factors as occupation.

4. The extent of the alleged increase in cancer above that due to the aging of the population.

5. The accuracy of mortality statistics.

6. The true incidence of the various forms of cancer.

In addition, there will be an annual index showing what sections of the population and what forms of cancer require the particular attention and expenditure of public health measure as education and

the establishment of tumor clinics. Statisticians will be provided for handling the reports received in the central office and for field assignments to carry out studies for the tumor clinics and aid them to establish adequate records and filing systems. These studies will provide more accurate mortality and morbidity records with respect to site, type, occupation, age, sex, color, and geographic distribution.

### Tumor Clinics

The best approach to professional education appears to be through the tumor clinic. With this in mind, the Division will promote the establishment of clinics, both for diagnosis and treatment, at strategic points throughout the state. They will conform to the regulations set forth by the American College of Surgeons, until such time as it may become necessary to raise the standards. It is planned that the therapeutic clinics shall be, except in large urban centers, at least fifty miles from each other, thus affording diagnostic and therapeutic facilities within the reach of all cancer patients in the state. To establish therapeutic clinics in closer approximation except for good reason perhaps would result in failure for all because of the large initial investment and cost of upkeep entailed in such a venture.

At present there are 49 tumor clinics in the state, of which 23 are in New York City, leaving 26 in so-called upstate New York. Of these 49, 24 are fully approved by the American College of Surgeons. By means of aid supplied to the various clinics through the Division, it is hoped that more will be fully approved. This aid will provide consultants well qualified to diagnose and treat cancer by means of surgery, radium, and x-ray. This will enable the local staffs to obtain knowledge of radiation and stimulate training among the staff members, resulting in a self-operated unit requiring consultation only occasionally. It has been found through consultation with the staffs of tumor clinics that there is a need for clinical assistants, such as younger doctors willing to devote one morning a week to taking

histories, making physical examinations, thus preparing the clinical data so that an interesting and intelligent presentation can be made at the clinic. Other clinics are in need of clerical aid, to keep records, transcribe progress notes, etc. Most clinics report an absence of or inadequate supply of radium or radon. While some have received radium from the federal government, there was not enough to supply all. It is hoped that the Division at some future time will find itself in a position to satisfy this urgent need. It is understood that only clinics will be given radon that have on their staffs members or consultants who know how to use this therapeutic agent.

### Cancer Institutes

It is also proposed to hold cancer institutes, along the lines that have met with marked success in pneumonia and syphilis control. They will be held in various cities, well-known cancer authorities as well as qualified local doctors participating in programs on the various phases of the cancer problem. This will be done through the cooperation of the state and county medical societies.

### X-ray and Radium-Clinical Studies

Further studies will be made to ascertain the amount of radium and x-ray apparatus available in the state and to study the needs of the various hospitals in regard to them. Some of these data have been reported by the Legislative Cancer Survey Commission, but they require completion and must be kept up-to-date. The economic phase of the cancer problem has been somewhat neglected, and it is imperative that studies of this aspect be made.

It is believed a program so far-reaching is bound to produce results. The reporting of cancer may be objectionable to a certain few who despise so-called paper work, but the data obtained cannot be procured in any other manner. How can a disease be controlled if the amount and types of disease are not known? Control can only be accomplished when the magnitude of the problem is ascertained, not

...the more time will not only be of value in reaching but also in making diagnosis and treatment more accessible to the patient. For in most instances will stay at home or near home being minor relatives and friends while receiving treatment. The full effort is being made to give the patient as well as a certain peace of mind and convenience. Early diagnosis of the disease should be accomplished in a higher percentage of patients, thus affording more cure.

The estimates of the percentage of patients with cancer who receive the results already achieved in hospitals and clinics where adequate therapy is given to patients still at an early stage of the disease. The great majority of patients do not receive such early treatment. The extent to which patients, once under treatment, receive adequate therapy is unknown, but there is evidence that many patients receive only symptomatic treatment or treatment that is inadequate by modern standards of surgery or radiotherapy. In upstate New York over 80 per cent of all cancer patients admitted to hospitals enter general hospitals, fully half of which have no facilities for x-ray therapy and few of which possess facilities for radium therapy in adequate dosage.

The case fatality over a four to five-year period of over 8,000 cancer patients admitted to various hospitals and clinics in New York State was 82 per cent in 1932-1933. This group of patients was undoubtedly a favorably selected one, since many of these patients received treatment at two cancer institutes. However, assuming that the case fatality in this group holds true for the general cancer population, a conservative estimate based on results achieved with patients adequately treated at an early stage of the disease indicates that the case fatality could readily be reduced 40 per cent, which would mean in upstate New York a saving of 3,200 lives each year. Half of these would be cancer of the rectum, uterus, breast, and skin, the remainder scattered among the other sites of cancer that account for 50 per cent of the yearly deaths from the disease. On this basis for the entire nation, this would amount to 24,000 lives saved. This is a goal worth striving for, and with an adequate cancer program we believe it can be accomplished.

	1932	1933	1934	1935
State	1,200	1,100	1,000	900
Albany	100	100	100	100
Buffalo	200	200	200	200
Catonsville	100	100	100	100
Cornell	100	100	100	100
Genesee	100	100	100	100
Harvard	100	100	100	100
Johns Hopkins	100	100	100	100
Massachusetts	100	100	100	100
Memorial	100	100	100	100
Mount Sinai	100	100	100	100
NYC	100	100	100	100
Rockefeller	100	100	100	100
St. Mary's	100	100	100	100
St. Vincent	100	100	100	100
Wash. Univ.	100	100	100	100
White Plains	100	100	100	100
Wistar	100	100	100	100
Yale	100	100	100	100
Other	100	100	100	100
Grand Total	1,200	1,100	1,000	900

#### A MOVE IN THE RIGHT DIRECTION

Labor unions in New York City are starting a big x-ray diagnosis campaign to find and remedy tuberculosis among their members. The mass diagnosis of about 24,000 members of the International Ladies Garment Workers' Union is expected to be only a beginning of the work in other unions.

These statistics indicate a saving of 3,200 lives each year. Half of these would be cancer of the rectum, uterus, breast, and skin, the remainder scattered among the other sites of cancer that account for 50 per cent of the yearly deaths from the disease. On this basis for the entire nation, this would amount to 24,000 lives saved. This is a goal worth striving for, and with an adequate cancer program we believe it can be accomplished.



# Case Reports

## PRIMARY LYMPHOSARCOMA OF THE TONSIL

### The Importance of Sending Removed Tonsils to the Laboratory for Pathological Diagnosis

WILLIAM VERNON WAX, M D , Catskill, New York

**I**N VERY few hospitals where tonsillectomies are performed, and more rarely when they are performed in the surgeons' offices, are the removed tonsils routinely sent to the laboratory for pathological diagnosis

The case in point is that of an adult white male, G I, aged 38, weight 128 pounds, height 5 feet 6 $\frac{1}{4}$  inches, a farmer, who for about three years had recurrent "sorethroat" at irregular intervals during the winter seasons. He had measles and whooping cough as a child, with no unusual complications. Examination disclosed a fairly well nourished man whose head showed no gross deformities, pupils reacted equally and actively to light and accommodation, ears showed no obstruction and no inflammation, the ear drums were intact. The throat showed moderately enlarged faucial tonsils which were rather red and cryptic in areas. There was no ulceration or gross active inflammation. The tonsillar pillars, the pharynx, and the soft palate showed no gross pathological findings. There was no palpable enlargement of the cervical, axillary, or other lymph nodes. There were no other positive findings on general physical examination. Wassermann, Kahn, and urinalysis tests were negative. Blood count was within normal limits.

On August 22, 1936, under general anesthesia, at The Memorial Hospital of Greene County, at Catskill, a tonsillectomy was performed. Because the left tonsil, on examination after removal, felt rather hard and indurated, and because of a history of repeated tonsillitis, the removed specimens were sent to the laboratory. The patient made an uneventful recovery and was discharged from the hospital the following day.

Three days later, a report received from the New York State Institute for the Study of Malignant Disease at Buffalo, New York, stated "Sections of tissue from the left tonsil show a malignant neoplasm composed for the most part of round cells of lymphoblastic type appearing at one pole of tonsil. In this area the squamous epithelium covering has been eroded. Diagnosis lymphosarcoma of tonsil. Signed Dr A. A. Thibaudeau, Pathologist."

The patient was immediately contacted and, after arrangements were made, he was sent to the State Institute for the Study of Malignant Disease at Buffalo, New York, for radiation treatment. A careful checkup there revealed no other foci of lymphosarcoma. Following an intensive course of radiation therapy, the patient today, more than a year and a half after operation, is in apparent good health and shows no signs of metastasis. Careful and complete physical examination, including radiographic examination, on January 13, 1938, at the State Institute revealed no recurrence and no glandular enlargement.

Thomas Fitz-Hugh, Jr.<sup>4</sup> states that the majority of patients with lymphosarcoma are over 40 years of age, and makes careful differential diagnosis between Hodgkin's disease and lymphatic leukemia. In this instance none of these conditions was suspected and the tonsils were simply removed for recurrent "sore throat." Kundrat<sup>1</sup> was the first to give a clear description of the disease, which he outlined as lymphosarcomatosis. MacCallum<sup>2</sup> states that lymphosarcoma is a widespread growth arising from a group of lymph glands (but rarely occurs from a single one), or from a tract of lymphoid tissue, such as occurs in the intestinal wall and pharynx. He mentions only 8 cases,<sup>3</sup> and none of these was primary in the tonsil.

#### Conclusions

1. Removed tonsils are not routinely sent to the laboratory for diagnosis by most hospitals and surgeons, especially in rural communities.

2. Because specimens are not routinely sent, a case is reported in which a primary lymphosarcoma of the tonsil was discovered only through laboratory diagnosis at the State Institute for the Study of Malignant Disease, Buffalo, New York, which otherwise would have been entirely missed and not discovered until the patient presented himself at a later date with probably massive recurrence in the thoracic or abdominal cavity. Because of this fortunate discovery, adequate follow-up treatment was given and the patient is now living and well with no signs of metastasis, more than a year and a half after



FIG 1. Section of tonsil under low power magnification showing infiltration and invasion of lymphoid growth throughout the tissue, which fails to respect the capsular boundaries.



FIG 2. Section of tonsil under high-power magnification showing a delicate reticulum in the meshes of which lie cells of a lymphoid character.

operation for primary lymphosarcoma of the tonsil.\*

3. It is, therefore suggested that tonsils, whether removed in the office or hospital should always be sent to an accredited laboratory for pathological diagnosis.

I wish to express my indebtedness to the State Institute for the Study of Malignant

Disease, Buffalo New York for the kind cooperation and loan of the original slides for the photomicrographs.

291 Main Street

#### References

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2. MacCallum Johns Hopkins Hosp. Bull. 18: 337 (1907). Tr. A. Am. Physicians 22. 356 (1907)
3. MacCallum: A Text Book of Pathology 4th Edit. W. B. Saunders & Co. Philadelphia, 1928, p. 841.
4. Fitz Hugh Jr. Lymphosarcoma. Cyclopaedia of Medicine, VIII F. A. Davis Co. Philadelphia, 1936 p. 601.

### BERIBERI

HERBERT BERGER, M D, Tottenville, S I, New York

(From the Medical Service of the Richmond Memorial Hospital Dreyfus Foundation New York City)

**W**HILE this disease is endemic in tropical countries where rice forms the principal article of diet, a case in this part of the country is sufficiently rare to warrant its report.

**Etiology**—This condition is due to a lack of certain food substances comprising vitamin B and its subdivisions. Experimental production of the characteristic syndrome can be produced

by complete deprivation of vitamin B for a period of three months. On diets that are partially lacking in the essential accessory food substance, the symptoms are just as severe but the incubation period is considerably lengthened. The vitamin appears in so many foods that it is difficult to imagine a case in this country where the standard of living is fairly high.

**Pathology**—Patients dying from beriberi show the following pathognomonic features: degenerative changes in all peripheral nerves; congestion

\*The patient was again carefully examined on September 18, 1939 and there was no evidence of metastasis.

were originally attributed to these two diseases being bizarre symptoms of the avitaminosis. Two years later there is still paralysis of the right anterior tibial group of muscles, but the child is in perfect health otherwise.

### Summary and Conclusion

1 A case report of beriberi occurring in a child with perverse dietary habits has been presented

2 It is well for the clinician to keep this condition in mind so that the disease may be recognized in its incipency

3 Permanent paralysis can be prevented only by early specific treatment

### References

- 1 Vedder, Quoted in Cecil, Textbook of Medicine, Third Ed., 1934, p. 605
- 2 Harris, L. V., and DeLong, P. C. Lancet 1 886 (April 28) 1936

## GUMMA OF THE NASAL SEPTUM

LESTER L. COLEMAN, M D, New York City

(From the service of Dr Rudolph Kramer, Mount Sinai Hospital, New York City)

**T**HE role of syphilis in obscure nasal conditions is becoming more important because of its earlier recognition. Syphilis of the nose is an entity frequently overlooked unless made obvious by an ulcerated primary lesion. In the absence of a personal or family history of syphilis, we are prone to consider lesions of the nose and the septum as being due to other nonsyphilitic causes.

*E S No 57285*—A 4-year-old male child of Porto Rican parents was admitted to Mount Sinai Hospital on September 8, 1936, with a story of having had a small swelling of the vestibule of the nose two months before admission. The swelling progressed in size and soon extended to the other side, causing complete obstruction of the nose to nasal breathing. His past history was in no way enlightening or significant. His family history was irrelevant, both parents vigorously denied luetic history by sign or symptom. Subsequent Wassermann and Kahn tests of both parents and two other children were negative. A friend who boarded with the family was said to have had tuberculosis but could not be located for further investigation. Other than the history of nasal obstruction and occasional epistaxis, there were no further complaints.

Examination on admission showed a well-developed and well-nourished male child not acutely ill, in moderate distress because of nasal obstruction, with no evidence of congenital syphilis. There was a marked nasal twang to the voice. The eyes, eye grounds, and ears were entirely negative. There were many hard, firm, nontender, nonfluctuant lymph nodes palpable at the angle of the jaw in the submaxillary region. Epitrochlear glands were palpable, as were small discrete ones in the axilla and groin. The nose was completely obstructed by a soft, gummy, rubbery tissue associated with the septum. The mucous membrane had a peculiar bluish red cast and was covered by a profuse mucoid discharge. Cocaine and adrenaline application did not shrink this infiltrated tissue. The nasopharynx showed the choanae to be patent, with no thickening of the posterior part of the septum. The pharynx was moderately congested and the tonsils hypertrophied and cryptic.

The heart had a regular sinus rhythm and no murmurs. The lungs were perfectly clear to

percussion and auscultation. There was no widening of the mediastinum. The spleen could not be felt. The liver was one finger breadth below the costal margin. The extremities showed no bony abnormalities. The skin showed no petechiae, no rash or ecchymosis. Neurologic examination was entirely negative. Blood count taken on admission showed 10,000 cells per cubic millimeter with 66 per cent lymphocytes, 5 per cent monocytes, 1 per cent eosinophiles, and 28 per cent segmented polymorphonuclear leukocytes. The hemoglobin was 80 per cent. Examination of the urine showed nothing abnormal. The Von Pirquet and Mantoux tuberculin tests were negative. The Wassermann and Kahn tests taken on two consecutive occasions were 4 plus. The biopsy taken from the nose reported as chronic, nonspecific inflammation. Roentgen examination of the chest, sinuses, long bones, and mandible showed no abnormality. Temperature was 102 F on admission and rose to 103 F during the next three days, after which it dropped to normal limits and remained thus until the time of discharge from the hospital.

Four days after admission the child was started on a course of antiluetic treatments, which consisted of the weekly administration of 0.1 Gm of neosalvarsan intravenously, complemented by the intramuscular injection of 1/2 cc of bismol. After the first injection of bismol there began a very definite recession of the nasal mass. Within two days after the injection, a small portion of the anterior part of the septum was visible. It was only after further injections that the glands in the neck receded. It was felt, however, that the glands in the neck were caused by a superimposed respiratory infection.

The condition of the child progressively improved and at the time of discharge on October 10, 1936, there was no evidence of septal gumma, sagging of the dorsum of the nose, or perforation of the septum. When seen at the follow-up clinic in January, 1937, and in July, 1938, the Wassermann was still strongly positive. There was, however, no evidence of any nasal lesion. At the time of writing the child is still under antiluetic therapy.

### Discussion

The early recognition of the tertiary syphilitic lesion of the nose is dependent on the invariable inclusion of syphilis in differential diagnosis.

The absence of personal or family history of syphilis must not be regarded as being significant in the establishment of the diagnosis. The appearance of the nose, though not being characteristic, is highly suggestive by its reddish blue appearance. The underlying pathology is not that of a suppurative condition but of an infiltrative one, the tissues being packed with round cells forming an integral part of the mucosa and submucosal structures. The tertiary syphilitic lesion often has a predilection for the lateral nasal wall and the anterior part of the

nasal septum. The color of the lesion is distinctly not that of the fiery red of an acute inflammation, resembling an impediment to venous outflow rather than hyperemia.

### Summary and Conclusion

A case is reported of a gumma of the nasal septum in a 4-year-old child of a family that showed no evidence of syphilis, clinically or serologically. The early recognition of the disease with prompt antiluetic therapy resulted in a rapid recovery without residual deformity.

162 East 80th Street

## HEMORRHAGIC BARTHOLINITIS

HAROLD J. HARRIS, M.D., Westport, New York.

**A** SEARCH of the literature fails to discover any case of hemorrhage into Bartholin's glands exactly similar to the one described below.

Mrs. W. M., aged 39 primipara consulted the writer for prenatal care on June 13 1938. Her pregnancy was about seven months advanced. Her only complaint was urinary frequency and marked swelling of the legs. Urine showed many pus cells in a catheterized specimen. Hemoglobin was 11 Gm. Skin test for brucellosis was positive. Since the urinary findings and edema did not fit in with the usual picture of toxemia of pregnancy especially in view of a normal blood pressure, therapeutic test doses of B. abortus were decided upon. Promptly following its inception, the pyuria and edema rapidly disappeared. Hemoglobin increased to 11.6 Gm under iron and ammonium citrate by mouth. The patient seemed entirely well except for a sharp attack of vulvovaginitis, due to *Trichomonas vaginalis*, which was controlled by insufflation with aldarone. Castor oil and quinine were given July 21 to induce labor but with no effect. On July 28 it was repeated and she was delivered on July 29 of a 6½-pound child after only one hour of active labor. There were no tears. The mother's condition seemed excellent for the first two days but the fundus showed a tendency to rise at times and marked pallor was noted. On August 5 the patient complained of a painful rapidly appearing tender area in the left labium majus, which she thought had begun two nights before. Temperature was 99.4 F. Examination revealed a tense exquisitely tender swelling in the region of the left Bartholin's gland about the size of a golf ball. Pain was entirely relieved following the administration of one 6-meter diathermy treatment. Six days later pain suddenly recurred. The gland was incised on that day and was found to be completely filled with clotted blood. No attempt was made to excise the gland which was packed with iodoform gauze. On August 15 ten days after the appearance of the Bartholin gland cyst on the left side, a similar condition occurred in the right gland. This was incised before it had reached as great a size as the previous one and was also filled with clotted blood. It was packed in a similar way.

In the meantime, hemoglobin was found to have dropped to 8 Gm (45 per cent) red cells

were 2,500,000. Hemoglobin fell as low as 7 Gm (40 per cent) and red cells to 2,250,000. Differential count was normal except for slight achromia and anisocytosis in the red cells. No platelet count was done. There had been no hemorrhage other than slightly increased flow for the week after delivery. The patient reported one possibly purpuric patch on one thigh which had occurred spontaneously a few days following delivery and had disappeared. Moccasin venom was given daily at first, along with large doses of liver concentrate intramuscularly and iron and ammonium citrate by mouth. Response was extremely slow at first. By September 17 hemoglobin had reached 11.2 Gm. pallor was disappearing and the patient feeling almost well. The left Bartholin gland cyst was packed daily with iodoform gauze for six days, the right for two days. Both cysts healed completely within three weeks. The only diagnosis that could be arrived at was hemorrhagic purpura.

The two cases briefly abstracted below bear some resemblance to the above instance.

In 1878 a multilocular hemorrhagic cyst of Bartholin's gland was reported by Weinlechner (Bericht der K. K. Krankenanstalt Rudolph Stiftung in Wien 1877 p. 300 1878). This was a gradually growing tumor of the left labium which was only slightly painful. On incision partly coagulated blood escaped. A dark blue tumor about the size of a dove's egg lay deeper. This was incised, a greenish fluid escaped and the cyst was dissected out as completely as possible.

In 1879 Cheron reported a hematic cyst of the vulvovaginal gland (Rev. med.-chir. d. mal. d. femmes, 1 484, 1879). This patient was a woman of 50 who had a swelling of three months duration at the base of the left labium majus, about the size of an egg. A trocar was passed through the tumor followed by the escape of dark altered blood. The removal of the cyst was gradually accomplished by elastic ligatures placed around it.

The case seen by the writer was unique in the following respects. It was acute in onset simulated infectious bartholinitis was bilateral, occurred in a patient ill with brucellosis and was accompanied by a rapidly developing anemia.

## LEPROSY

## With Special Reference to the Upper Respiratory Tract

DAVID IDE, M D , New York City

*(Associate Attending Welfare Hospital and Assistant Attending City Hospital, New York City)*

**L**EPROSY is a disease of great antiquity first described by the Egyptians in 1350 B C. In India it is mentioned in the Vedas of 1400 B C, one of the disciples of Confucius having had the disease.<sup>1</sup> Zazaath is the biblical name of the affliction.<sup>2</sup> In this country, the northeastern seaboard is comparatively free of this disease. Fordyce and Wise<sup>3</sup> reported a leper, 65 years old, born in Odessa, who had lived in the United States for twenty-five years and developed the disease only five years ago. Morrissey<sup>4</sup> reported a case of a 44-year-old Italian, who was in this country ten years and symptomless for seven years. Lane<sup>5</sup> described a case, who, born in Thessaly, arrived in New York in 1912. His Wassermann was positive and the lepra bacilli were present in the nodules and nasal smears.

## Pathology

The disease is the result of infection with *Bacillus leprae*, discovered by Hansen in 1874. It is a slowly developing affection, of extreme chronicity, in which nearly all the tissues become invaded by the bacilli. These bacilli are rod shaped and acid fast, resembling the tubercle bacillus. Recent investigation has shown that these lepra bacilli show resemblances to the fungi, and now the name of lepra has been replaced by *Mycobacterium leprae*. The bacillus is found lying in parallel bundles or in round masses as compared with the irregular grouping of the tubercle bacillus. Few or no toxins are produced in this disease. The round cell and epithelioid infiltration of the connective tissue is soon followed by destruction of hair follicles and glands. Thus is formed a granuloma with distended blood vessels and lepra cells. The latter arise from the reticulo-epithelial cells which have taken up the mycobacteria. These phagocytic cells are large and pale with a single, rather pale vesicular nucleus and vacuolated or foamy cell protoplasm. They are called "Foam Cells."

These foam cells are so numerous as to be crowded together, and are far larger than any other cells to be found in a microscopic field. Stained with fuchsin, they are found to be packed full of bacilli. It is also true that other cells contain them, and that many are scattered loose or lie in phagocytic cells in the blood vessels or even in the endothelium of the blood vessel. With ulceration, thousands of these bacilli are set free. Scarring of such ulcers is progressive and produces rather pale areas, in contrast to the normal pigmented skin.<sup>6</sup> A similar microscopic picture is seen in the mucous membrane of the upper respiratory tract. In the pharynx, larynx, trachea, and bronchi the same lesion is found, but to a lesser degree. Due to this infiltration, the vocal cords become thickened and ulcerated, the voice sinks to a rough whisper, "leprous huskiness."

## Course

Acute phases associated with recessions are characteristic of leprosy. This is particularly true in the nasal region. A sudden blocking with swelling of the nasal mucous membrane occurs. This may continue from a few days to several weeks. A quiescent period follows, which to the untrained eye appears free from disease, but careful inspection will show evidence of lepromatous masses and scarring over the inferior turbinates and septum. Soon another acute attack, then recession and quiescence. This keeps on, and over a period of time the scarring produces atresia of the nasal chambers. Pain is not a constant symptom, but when it does occur it may be of great intensity. The onset of leprosy is conspicuous by its insidiousness. Fluctuations in the course and manifestations in the skin and nerves have parallels in the mucous membranes and structure of the nose and throat.<sup>7</sup>

Because of the rarity of leprosy in this region and its great interest to the otolaryngologist, this case is presented.

G K., female, age 62, accidentally burned her left arm in 1917. Her condition was diagnosed as being due to spinal disease because of the anesthetic area at the site of the burn. Following this episode various areas of her extremities were burned without associated pain. She was given thyroid and was told that her trouble was due to "glands." X-rays diagnosed an enlarged pituitary. Bad headaches, not limited to any region of her cranium, were present.

In 1921 a definite diagnosis of leprosy was made. Mercury, bismuth, salyrgan, and chaulmoogra oil were given. The blood Wassermann was negative. Chaulmoogra oil was continued for fifteen years. Two years ago hopes for cure were lost, but because of the marked nasal obstruction, the pressure, and huskiness of her voice she was referred to the writer.

This patient gave birth to six children, one died during infancy, five living are all well with no evidence of leprosy. The oldest child is 42. There are two grandchildren who are normal. Her mother died at the age of 80, her father at 87. There were three sisters, one died of carcinoma of the colon, the others are well. She had two brothers. One died of cancer of the stomach, the other was killed in an accident. Her husband is normal. She first came to this country in 1904 from Kurland, now known as Latvia, on the Baltic Sea. Her medical history was negative until 1917 when she first learned that she could burn her skin without pain. In 1931 a septum operation had been performed for nasal obstruction. The results were poor, the obstruction became progressively worse. She was referred to me May 28, 1935, complaining of nasal obstruction.

The patient presented the typical leontiasis facies. Her nose was flattened its tip a loose, flabby, and formless mass. The entire body was covered with brownish nodules. She spoke in the typical leprous huskiness and only in a whisper. Her breathing was difficult. Both nasal canals were almost entirely obliterated the mucous membrane dry and parchment like. A fine probe could be passed through these canals only with difficulty. The buccal mucous membrane presented nodular formation with atrophy. The tongue appeared much enlarged.<sup>3</sup> The uvula was at least three times the usual size and covered with nodules and ulcerations



The tonsillar pillars as well as the tonsils appeared thickened and infiltrated. There were several large nodules in the left tonsil. Indirect inspection of the larynx showed an enormous thickened epiglottis distorted and somewhat curled on itself. The vocal cords were thickened, no ulcerations were seen, their excursions were greatly limited. The arytenoids stood out prominently and were mobile. The blood Wassermann was four plus. A biopsy was taken from the uvula October 10 1938 and the microscopic report follows.

Sections reveal a few fragments of tissue from the uvula. These fragments are covered by a squamous epithelium which in areas was intact and which in other areas was superficially ulcerated. There is some acanthosis present with a tendency toward formation of penetrating strands of epidermis. In the vicinity of the ulcerated area the underlying tissue contains numerous polynuclear cells. The bulk of this tissue is composed of a peculiar granuloma which occupied all of the subepidermal tissues. This granuloma is composed of strands of fibrous tissue enclosing large nests of vacuolated cells. These cells conform to those which have been described as 'lepra cells. In addition to con-

nective tissue and nests of lepra cells there are areas containing young fibrous tissue with many aggregations of plasma cells. Acid fast stain reveals myriads of acid fast bacilli, particularly within the lepra cells."



#### The Wassermann Test

Kalmer and Dunny<sup>4</sup> attempted to explain the presence of a positive Wassermann in leprosy. Eliasberg reported the presence of 80.6 per cent positive Wassermann reactions in his series. Sordelli and Fisher had 68 per cent positives. Lues can occur in association with leprosy. Kalmer and Dunny, studying this problem concluded that the antigen used was the important factor in question. The antigen, as cholesterolized and lecithinized alcoholic extract of heart muscle, improved by Kalmer was used in a study of 125 cases of leprosy. These were also checked with the old antigen. The new antigen has all the lipoidal and protein substances responsible for anticomplementary and nonspecific reactions entirely eliminated. Using the new antigen all cases had negative Wassermann while the old antigen gave 7.2 per cent positive Wassermanns. Kalmer and Dunny state: "When positive reactions with the new method occur with the serums of such persons we believe that evidences of syphilis will be found."

A luetic history and clinical findings were positively ruled out, yet the Wassermann was four plus in my case. A cholesterolized alcoholic antigen was used. The report of the pathologist the clinical description of the patient, and the progress of the case only emphasize the correctness of the diagnosis. The positive Wassermann without the history of lues also is characteristic. No hopeful prognosis can be given as to cure.

With all the treatment given in the past fifteen years, the disease progressed. Our aim there-

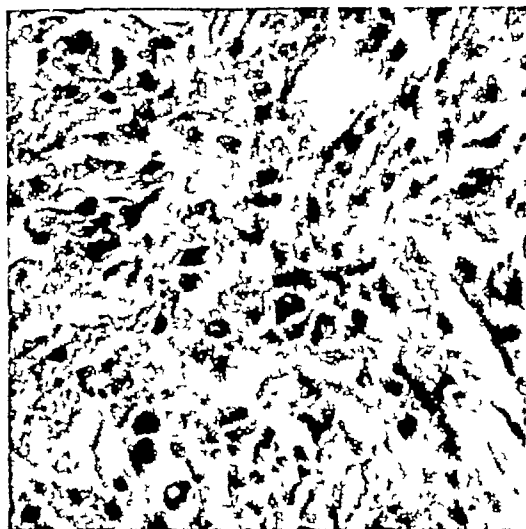


FIG 1 Photomicrograph high power showing "Foam Cells" and Acid Fast Bacilli

fore, was to alleviate symptoms as they arose. The nasal condition was very objectionable. She complained bitterly. By gradual dilatation

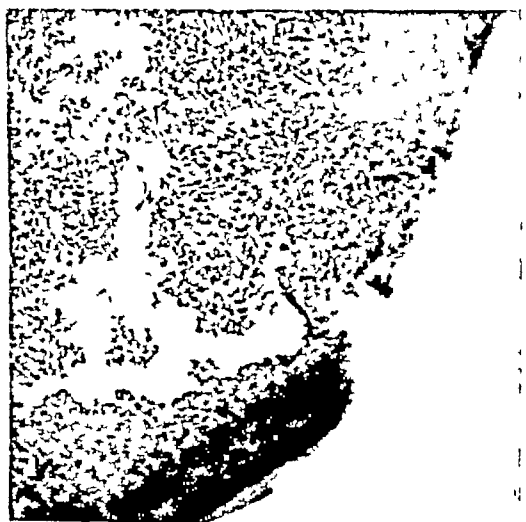


FIG 2 Photomicrograph low power showing the squamous epithelium with ulceration and infiltration with polymorphonuclear cells



FIG 3 Photomicrograph low power showing acanthosis and marked ulceration

with a long dilating nasal speculum and lubrication, I was able to enlarge the canal about 1 cm. This procedure had to be performed at least once every month.

#### Comment

1 It was an error to do a resection of the nasal septum in a known case of leprosy.

2 Although the organisms can still be found in the tissues of a leper, the disease is not apparently easily communicable.

3 Conservatism should be practiced in such cases.

1749 Grand Concourse

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#### KILLING THE GOOSE THAT LAYS THE GOLDEN EGG

Doctor McTavish had worked hard to put his boy Sandy through medical school. When Sandy graduated and returned home the old doctor turned his practice over to the boy and took a well-earned vacation.

Upon his return he was greeted by Sandy at the station, who said "Father, I've made some

marvelous cures. I even cured Mrs. MacGregor's stomach trouble after you had treated her for four years!"

"What?" exclaimed the old doctor. "I'll have you to know that Mrs. MacGregor's stomach put you through college."

—Illinois M J

# Presidential Address

TERRY M. TOWNSEND M D

President of the Medical Society of the State of New York

## The Value of the Medical Society of the State of New York to the Pathologist

*Delivered before the Annual Meeting of the New York State Society of Pathologists at the Dewitt Clinton Hotel, Albany October 7 1939*

**T**HE correct determination of value rests upon the relation of what is given and what is received. To obtain a clear view and correct understanding of the relations between the Medical Society of the State of New York and the physicians who are devoting their professional attention to pathology we must enumerate what is given and what is received on the part of each.

There is no right or privilege that does not carry a commensurate obligation or responsibility. To receive, it is also necessary to give. We know that many physicians licensed by our state and practicing pathology are not members of organized medicine. Nevertheless our State Society is interested in the welfare of these non-members. The mass is composed of integers. When disintegration occurs, mass progress is lost. It follows that if your State Society is to do its utmost for your advancement it must have your complete support in obtaining 100 per cent membership in your State Society.

The advantages of membership in organized medicine have been stated so frequently that I hesitate to reiterate them. The material advantages are (1) the attendance at and participation in the meetings of your county state, and national organizations (2) receipt without additional cost of your local and state medical journals (3) your right to protection from malpractice suits and insurance coverage. Finally there is a spiritual satisfaction in joining with your colleagues in a common purpose of protecting the public from disease and death by casting out charlatans by dissemination of knowledge by helping to lead the public away from their false leaders such as the misinformation of social workers, uninformed politicians, those of communistic theories, and inducing them to accept the health advice of doctors of medicine and not doctors of philosophy.

We are deeply interested in the status of the pathologist and his laboratory. Within the past two decades we have observed the gradual taking over of pathologic and laboratory work by the federal, state, and municipal institutions. In many public laboratories any laboratory procedures may be had gratis and all pathologic opinions are given free without regard to the patient's private means. If these services were limited to the indigent there could be no complaint of injustice, for the indigent is the affair of the state.

There has been drawn no line of demarcation between Wassermanns and smears, and suspected tuberculosis sputums, which by liberal interpretation could be tolerated since it involves dissemination of infection inimical to the citizenry.

These Public Health laboratories go further and investigate and report on tissue sections.

### Standards

The Medical Society of the State of New York is much interested in raising the standards of pathologists and improving the efficiency of their laboratories. We desire the pathologist to be a member of the medical board of the hospital with which he is affiliated that he assume his rightful position on the staff instead of merely holding one or two pathologic conferences monthly which is the custom. Unfortunately your State Society has no power to bring this about. This power rests with you.

Your State Society can do much to raise the status of pathology by insisting that each one in charge of a department shall be a diplomate of the National Board and by insisting that all pathologists who may be called in consultation shall be diplomates. We can do much for you by endorsing the efforts of the Public Health authorities in raising the standards and qualities of the laboratories to approach the excellence of the Public Health laboratories. The City of New York is now attempting to have the laboratories in that city emulate the standards of the state laboratories.

### Economic Status of the Pathologist

The present economic status of the pathologist is admittedly low. Some causative factors have been mentioned such as the ingression of state laboratories. There are other factors attributable directly to the pathologists. When they first became paid employees of hospitals and clinics they opened the first break in their armor. They definitely contracted to perform an indefinite amount of professional services for a definite fee. It is questionable whether the word fee should be used. Possibly salary would be a better designation. So long as the hospital prospered he had a reasonable hope for professional advancement and a reasonable expectation of increased income. But like all businesses and the management of a hospital is a business when financial depression wiped out the donor class all on the hospital payroll received cuts. In desperation the hospital clutched at the heels of the pathologist and others like a drowning man to the proverbial straw. He was obliged to accept a lower income and increased work.

The pathologist cannot be severely blamed for the predicament into which he plunged himself if we stop for a moment to review his career. His urge in college had been toward that end, his training fitted him in particular for that work, his surroundings formed a cloister. He never



found himself by taste or opportunity facing the surgical defeat of a ruptured suppurating appendix or the approaching crisis of a vicious pneumonia. He had always dealt with the most exact part of our medical art and practically with none of the skill. What could be more expected than that he affiliate himself with an institution where his education and talents could be put into immediate use? With that step he relinquished his individuality.

To many men "economics" means "How much money am I going to receive?" Money as we know it is the yardstick and scale arm of services rendered or commodities exchanged. If we are to be happy in medicine we must accomplish an inner freedom by which a man can rid himself from the strongest power in the world, that is acquisition of money. Good and efficient medicine never requires economics to help pay its way. A healthy discontent is more valuable than a healthy bank account since the discontent is a spur and a stimulus to better work.

### Relief

It is questionable when, if ever, the unfair state subsidies to laboratories will be changed. Legislators fear any change in the laws designated as for the public good. The moment physicians present their point of view in the problem they are told that the basis of justice is to obtain the greatest good for the greatest number and that physicians are in the great minority as compared with the public. Your leaders in organized medicine will always bear this inequity in mind and lose no opportunity to rectify it.

You as pathologists are able to help your State Society to help you by determining once and for all the classification of laboratories. To the best of my knowledge, a registered laboratory means nothing, a licensed laboratory is no stronger or better than the authority that gave it a license, an approved laboratory is presumed to carry the blessing that would bring it beyond suspicion. This question is a vital one to be solved before basic construction work can be done on your behalf.

### Pathology in Relation to the Hospital

I have made prior reference to the necessity of a high degree of training and experience

necessary for pathologists. If one thinks of the responsibility the pathologist must occasionally carry, the demand for excellent qualifications is readily understood. From the medicolegal aspect there is no alibi for a mistake in typing and cross matching in emergent transfusions, in typing for paternity tests, and autopsy findings.

The role of the pathologist in the hospital has been secondary because of the pathologist himself. Can you truthfully say that you make regular rounds with the chief of any service? Have you volunteered to do so? Have you by diligent work in your specialty impressed the chiefs of staff that you can help solve puzzling clinical questions? Do you attend all staff meetings prepared to discuss and shed light on morbidities and mortalities?

With the present attacks on medicine we all find ourselves against the same blank wall. Your difficulties are no greater than those of any other branch of our profession. The encroachments on your department due to the lowered morale of the public are no deeper than in other specialties. Unless we present a united front we may be separately attacked. Medicine will never fail, but its progress may be retarded.

### Summation

The highest standards obtainable must be achieved.

That which each of us can do in the achievement of that end is of infinitesimal importance, but that we should do everything in our power is of infinite importance.

You as pathologists can raise yourselves into greater positions by excellence of work and increased laboratory efficiency.

The Medical Society of the State of New York is ever regardful of the profession within its boundaries and makes every effort to preserve equitable relations between the profession and the public.

We have knowledge which makes us proud, but we also have wisdom which keeps us humble because we know no more.

In the end we must rely on each other, for

"Craven, we seek a leader, who will raise a torch and make our pathway smooth again, forgetting that within us sleeps a fire sufficient in itself, to make us men."

### PHI DELTA EPSILON CONVENTION

The Phi Delta Epsilon Medical Fraternity will hold its 36th annual convention at the Waldorf-Astoria Hotel, December 29, 30, and New Year's Eve. Morris Fishbein, M D, Editor, Journal of the American Medical Association and national president of the fraternity, will preside at the sessions.

### PHI LAMBDA KAPPA CONVENTION

"The Thirty-second Annual Convention of the Phi Lambda Kappa Fraternity is to be held in New York City at the Park Central Hotel on December 30 and 31, 1939, and January 1, 1940. The Convention Chairman is Dr. Albert H. Busky, 411 Linden Boulevard, Brooklyn, New York."

# Medical News

## County News

### Albany County

The Medical Society of the County of Albany listened on November 15 to an address by Dr Carl Eggers, attending surgeon Lenox Hill Hospital, New York Post-Graduate Hospital clinical professor of surgery Columbia University on Carcinoma of the Breast

### Allegany County

All officers of the Allegany County Medical Society were re-elected at the annual meeting on October 26 at Belmont. The business session was held in the Antlers Room of Village Hall following luncheon at The Belmont

Dr Bernard Brouwer, of Rochester delivered the principal address on Applied Psychology and Its Relation to the Practice of Medicine

Officers for the ensuing year are Dr Phillips L. Morrison, of Bolivar president Dr J Paul Rems, of Belmont vice-president Dr Edwin F Comstock, of Wellsville, secretary and Dr Roger W Blaisdell of Wellsville, treasurer Dr Lyman C. Lewis, of Belmont was named a member of the State House of Delegates.

### Bronx County

The November meeting of the Bronx County Medical Society was held in conjunction with the Bronx Tuberculosis and Health Committee at Bunside Manor on November 15

The subject of discussion was 'The Role of the General Practitioner in Pulmonary Tuberculosis.

Talks were given by Dr Max Pinner chief of the Division of Pulmonary Diseases at Montefiore Hospital, and Dr Edgar Mayer assistant professor of clinical medicine at Cornell University Medical College.

Discussants were Dr Herbert R Edwards, Dr Jacob Segal and Dr Eli Rubin.

Many instructive, pointed and valuable exhibits were on display

### Broome County

The Broome County Medical Society met at the Monday Afternoon Club House, in Binghamton, on November 14 and heard a paper by Dr Charles D Squires on 'First Aid Treatment of Fractures' illustrated by motion pictures

### Chemung County

The annual joint meeting of the Chemung County Medical Society and the Elmira Dental Society was held at the Elmira City Club on November 29 Dean E W Kock, of the University of Buffalo Medical and Dental School spoke on "Medical and Dental Education."—Reported by F S Hasselt M.D. Assist. Secy.

### Erle County

The Section of Pathology of the Buffalo Academy of Medicine presented this program on November 23 arranged by the Buffalo Pathological Society

1 Morphologic Variations in Adenocarcinoma of the Uterine Fundus, with Special Reference to the Activity of a Luteinizing Hormone, by Dr Norman W Elton 2 Experimental and Clinical Observations on the Action of Sulfanilamide in Meningococcal Meningitis, by Dr Erwin Neiter and Dr Carl A. Stettenbenz. 3 Significance of Bronchial Obstruction in Pulmonary Tuberculosis in Children and its Relation to Epituberculous Pneumonia, by Dr Kornel Terplan.

### Franklin County

These officers for 1940 have been elected by the Medical Society of the County of Franklin president Dr Kenneth A Tulloch, of Malone vice-president, Dr Arthur Vorwald of Saranac Lake secretary treasurer Dr Daisy H Van Dyke, of Malone censor three years, Dr William P McKenna, of Chateaugay delegate to the State Society Meeting Dr C C Trembley of Saranac Lake alternate, Dr John E White of Malone.—Reported by Daisy H Van Dyke M.D. Secretary

### Jefferson County

At the annual meeting of the Medical Society of Jefferson County on November 10 the following members were elected to office president Harold L Gokey of Alexandria Bay vice president, F R Calkins of Watertown treasurer W F Smith of Watertown and secretary C. A. Prudhon of Watertown. Censors were James E McAskill of Watertown Harlow E. Ralph of Belleville, Carl B Alden, of Adams, J R. Pawling of Watertown, and D G Gregor of Watertown. Delegate to the State Society C. A. Prudhon alternate W W Young of Watertown delegate to fifth district branch W N Maloney of Cape Vincent and alternate, L L Samson of Alexandria Bay

The scientific program was 'Diagnosis and Treatment of Lung Abscess and Bronchiectasis,' by Dr Ethan Butler of Ithaca.—Reported by Charles A Prudhon M.D. Secretary

### Nassau County

There will be a special meeting for the Junior Members of the Nassau County Medical Society at the Cathedral House Garden City on December 10 at nine o'clock, with a group of speakers on the general theme How the State and County Governmental Agencies Can Assist the Private Practitioner

Instead of the regular monthly meeting the society held its Annual Beefsteak Dinner at the Wheatley Hills Golf Club on December 12.—Reported by J Louis Neff M.D. Executive Secretary

### Niagara County

The Medical Society of the County of Niagara met on November 14 at the Niagara Hotel Niagara Falls and heard Dr Henry N Kenwell, of Buffalo speak on 'The Management of Breast Tumors.'

### Oneida County

Medical and Surgical Care Incorporated, non-profit medical plan, elected a staff of officers headed by Dr F M Miller, Jr, president, at its organization meeting in Utica on November 2

Other officers chosen were first vice-president, Dr H N Squier, second vice-president, Dr J F Kelley, treasurer, Charles W Hall

The officers and these members comprise the board of directors Edward Clumey, Nicholas E Devereux, Albert O Foster, Dr Arthur R Grant, Dr William Hale, J David Hogue, Dr Hyzer W Jones, Dr James B Lawler, Dr Dan Mellen, Dr F M Miller Sr, F E Richmond, Walter F Roberts, Dr Robert Warner, and Michael Yust

These committees were appointed Investment Committee, A O Foster, chairman, Richmond, Clumey, Roberts, Yust, Devereux, and Hogue Participating Physicians Enrollment Committee, Dr Mellen, chairman, Drs M T Powers, Grant, Lawler, James I Farrell, Andrew Sloan, and Robert Warner Claims Committee, Dr Hale, chairman, Dr Kelley, vice-chairman, Drs Harold Pender, J L Golly, Fred G Jones, Anthony Panzone, and Warner

The plan, the first in this state, was created under a special act of the legislature to provide for payment of physicians' fees for treatment in the home, office, or hospital of all types of illness and accidents It will be offered in connection with the present Hospital Plan in these 12 counties Oneida, Madison, Lewis, Herkimer, Chenango, Otsego, Montgomery, Fulton, St. Lawrence, Franklin, Essex, and Clinton

The Hospital Plan maintains 13 district offices outside the city of Utica and the medical plan will be offered through the same sales organizations operating these district offices, according to Harold C Stephenson, managing director

More than 50,000 questionnaires have been mailed to Hospital Plan subscribers to ascertain what benefits the majority desire Upon receipt of the answers, the final plan will be completed and offered to the public in a few weeks

### Onondaga County

Among six Syracuseans prominent in city civic life who were honored by the Rotary Club last month on the eve of Armistice Day was Dr Thomas P Farmer Mr Grant W Ernst presented the following citation

"In honoring you today, the Rotary Club of Syracuse is itself honored by your presence. Educated in Syracuse schools, a graduate of our own University's College of Medicine in 1906, your long record of accomplishment in this city is one to make us justly proud of you as a citizen

"In these few minutes we can only touch on the highlights of your long and successful record of service—as commissioner of health of the City of Syracuse in 1922, as president of the Syracuse Academy of Medicine in 1924, as president of the Onondaga County Medical Society in 1933, with terms as president of both St Joseph's and Memorial Hospitals Your record as a public servant might well rest on these distinctive services alone But Rotarians know these were only the beginnings

"We honor you today as well for your service as chairman of the Council Committee on Public Health and Education of the Medical Society of the State of New York and for your creation of

the Institute of Nutrition and Diet, sponsored jointly by the Medical Society of the State of New York and the New York State Dietetic Association

"As one of the first, if not the first, physician to employ radium in the treatment of cancer in Syracuse, your work in this field has been duly recognized by your profession through your membership in the sub-committee for the control of cancer, through membership on the Public Health Committee of our own Onondaga County Medical Society, and as recently as October 12 of this year, when you were named by Dr Edward S Godfrey, Jr, commissioner of health of the State of New York, to the state committee for control of cancer

"We, of course, all know you better as chairman of the Syracuse Housing Authority, an active job in which you are making an outstanding and a permanent contribution to the welfare of this city

"So our Rotary Club presents you, in honor, a rose. Edwin Markham, the great American poet, best expresses our presentation of this symbol with these words

"There is a destiny that makes us brothers,  
None goes his way alone,  
All that we send into the lives of others,  
Comes back into our own "

Dr E N Boudreau discussed "The Medical and Social Challenge of Alcoholism" before the Onondaga County Medical Society on November 7

### Ontario County

At the monthly meeting and dinner of the Canandaigua Society of Physicians and Surgeons, held on November 9 at the home of Dr C Harve Jewett, the speaker, Dr C Arthur Elden, of Strong Memorial Hospital, Rochester, discussed "The Use of Endocrines in Gynecological Practice."

The seventeenth annual meeting of the Geneva Academy of Medicine was held at the Hotel Seneca, Geneva, on November 16 The guest speaker was Dr George B Eusterman, of the Mayo Clinic, Rochester, Minnesota, who spoke on "The Nonsurgical Aspects of Acute Abdominal Conditions" Dr William S McCann, of Rochester, and Dr Samuel A Munford, of Clifton Springs, discussed the subject An unusually large number of physicians were at the meeting

### Oswego County

The Oswego County Medical Society met at the Citizens Club, Fulton, on November 15 and heard an address by Dr Clyde A Heatley, professor of otolaryngology, Rochester Medical School, on "Bronchoscopy from the Standpoint of the General Practitioner "

### Putnam County

The speaker at the October meeting of the Putnam County Medical Society, which was held on October 4 at the Gypsy Trail Club, Carmel, was Dr E Everett Bunzel, associate obstetrician and gynecologist at Sloane Hospital and associate gynecologist at Vanderbilt Clinic. Dr Bunzel's topic was "Some Practical Considerations in Obstetrics " A forum discussion followed the address

The Putnam Society, to provide more amply for scientific programs, has arranged to meet on the first Wednesday of every month at the Gipsy Trail Club with a dinner at 7 00 P.M. followed by a program.

At the monthly dinner and business meeting of the Putnam County Medical Society held at the Gipsy Trail Club, Carmel, on the evening of November 1, Dr. Leon T. LeWald, consulting roentgenologist, Willard Parker Hospital, formerly roentgenologist, Bellevue Hospital, spoke upon the subject "Thymus Gland Therapy" — Reported by John T. Jenkin, M.D., Secretary.

#### Rensselaer County

At the meeting of the Medical Society of the County of Rensselaer on November 14, officers were nominated for the election on December 12.

Dr. Shields announced that the principal speaker at the annual dinner would be Dr. Sarah M. Jordan of the Lahey Clinic.

Dr. F. A. D. Alexander, director of Anesthesia and Gas Therapy at the Albany Hospital, presented the following: "Oxygen Therapy, Indications, Complications and Technique" — Reported by Leo S. Weinstein, M.D., Secretary.

#### Richmond County

Dr. George Kosmak, F.A.C.S., was the guest speaker at the Maternal and Child Welfare Committee meeting Friday, November 3, in the auditorium of the Health Center, St. George. The Maternal and Child Welfare Committee was organized in June through the efforts of Dr. D. V. Catalano, chairman of the Maternal and Child Health Committee, Richmond County Medical Society.

A symposium on pneumonia, stressing new theories of chemotherapy, featured a meeting of the Richmond County Medical Society in the Richmond Health Center, Stuyvesant Place, St. George, on November 8. Dr. Frederick M. Schwerd presided.

Speakers were Dr. Norman Plummer, attending physician at New York and Post Graduate Hospitals, Manhattan, and chief of pneumonia service at Bellevue Hospital, and Dr. Wheelan D. Sutcliffe, director of the New York City Health Department Laboratories. Dr. Plummer spoke on "Present Day Therapy of Pneumonia," with Special Reference to Sulfapyridine, and Dr. Sutcliffe spoke on "Bacteriological and Clinical Differences under the New Therapy of Pneumonia."

#### Saratoga County

Dr. Ralph B. Post was re-elected president of the Saratoga County Medical Society at its annual meeting at the Metropolitan Life Insurance Sanitarium at Mt. McGregor on October 25.

Others elected were Dr. Gilbert Pasquerra of Mt. McGregor, vice-president; Dr. Malcolm J. MacGovern of Saratoga Springs, secretary; Dr. W. J. Maby of Mechanicville, treasurer; Dr. Frederick J. Resseguie, Dr. Edward J. Callahan, and Dr. Thomas J. Goodfellow, board of censors; Dr. G. Scott Towne, of Saratoga Springs, delegate to the state convention; and Dr. J. M. MacElroy, of Jonesville, alternate.

Members of the society were the guests of Dr. William H. Ordway, superintendent at Mt. Mc

Gregor, at a dinner at which Dr. Webster M. Moriarity of Saratoga Springs and Dr. Lewis O. Connor, former editor of the *American Heart Journal* and now professor of clinical medicine at Cornell University, were the guest speakers.

#### Steuben County

Officers elected by the Steuben County Medical Society at Bath on November 9 are: president, Dr. Richard A. O'Brien of Corning; vice-president, Dr. W. J. MacFarland of Hornell; secretary-treasurer, Dr. Rudolph Shaffer of Corning.

Delegates to the meeting of the State Medical Society are: Dr. L. M. Kysor of Hornell and Dr. Herbert B. Smith of Corning, alternates; Dr. W. J. Tracy of Hornell and Dr. Guy M. Parkhurst of Bath.

The Board of Censors is: Dr. L. A. Thomas, of Painted Post; Dr. E. P. Smith of Cohocton; Dr. James J. Sanford of Bath; Dr. Stuart Beam of Addison; Dr. M. A. Place, of Hornell; Dr. C. M. Lapp of Corning.

#### Westchester County

Cooperation among physicians, business men, lay agencies and others interested in medical care was the keynote of an address delivered by Dr. Ralph T. B. Todd of Tarrytown, retiring president of the Westchester County Medical Society, at its One Hundred and Forty Second Annual Meeting on November 21.

Dr. Todd pointed to misunderstandings that sometimes occur among these groups. He called upon the medical society to carry on an active program of self interpretation to the public, broadening as it goes and clearing up the enigmas that medicine presents to the lay man.

Dr. Todd noted that the cost of medical care has increased tremendously with the result that diagnostic and treatment centers have been developed which require business methods in their operation. So it is here that the business man must enter the field of medicine. We need his aid, but insist that he realize his added responsibility when he enters our field."

Dr. Henry J. Vier of White Plains, in his inaugural address as president, pointed to a new unity of thought in the medical profession. "It is concerted effort," he said, "that assisted in bringing about a new unity of purpose in the profession, as evidenced in the policy of our national body toward the Wagner Health Bill and other proposals for state medicine. The economic welfare of our patients and ourselves," he declared, "will be greatly benefited by the eventual adoption of medical indemnity insurance which apparently is at hand."

"The New York State and Westchester County Medical societies, and the American Medical Association are bending every effort to promulgate such assistance to the public but this does not mean that we have in any sense abandoned our opposition to compulsory sickness insurance or other programs involving the political domination of our profession and its service to our patients."

A pressure group to end pressure groups was advocated by Dr. Terry M. Townsend, president of the New York State Medical Society, in his address.

"Our greatest peril," said Dr Townsend, "is from rule by minority pressure groups. Our real experts, those who know most, may be overlooked in the welter of selfish claims. Everybody seems more vocal on medical care than the doctor, who gives what the others are talking about."

"Most of us feel that control by the state would result in deterioration of the quality of medical practice, make a timeserver and a clock-watcher of the physician and substitute mutual suspicion for mutual confidence between doctor and patient. If we made clear to the great majority—the American public itself—what is really at stake, the health of the patient, there would be no question of the ultimate decision."

"Go to the public with your views," Dr Townsend urged, "you have a right to express them both individually and as groups, you are citizens and taxpayers, you will never be criticized for

making your voices heard above the babble of conflicting claims from pressure groups that confuse the average person in this country today."

The main speaker was Mr J G Crownhart, secretary of the State Medical Society of Wisconsin, who described the government system of compulsory health insurance and sickness care in various European countries that he visited in 1938 on a four-month tour of study. Mr Crownhart warned that compulsory sickness insurance will mean a great increase in the total cost of medical care, because fifteen or twenty cents of every dollar collected will go to the lay bureaucracy required to administer the system. He maintained that both quantity and quality of care would suffer because of administrative red tape that would make the physician responsible primarily to the lay supervisor rather than to the patient.

### Deaths of New York State Physicians

Name	Age	Medical School	Date of Death	Residence
Lewis N Anderson	67	P & S N Y	November 10	Brooklyn
Meleatus Bruce	70	Albany	October 25	Richmondville
Lewis N Eames	59	Buffalo	November 15	Rome
Philip R Flanagan	73	P & S N Y	August 4	Chatham
David McD Hackwell	46	Buffalo	November 9	Holland
Eddie D Hall	66	Syracuse	October 14	Central Square & Caughdenoy
John A Heim	50	Cornell	November 17	Manhattan
Francis J Murray	66	P & S N Y	November 16	Manhattan
William B Reid	66	Syracuse	November 10	Rome
John Rogers	73	P & S N Y	November 19	Manhattan

### MALFORMED BABIES LIKELY TO REPEAT

The mother of a congenitally malformed child is approximately 25 times more likely to have another malformed offspring than is the average mother in the general population, Dr Douglas P Murphy of the University of Pennsylvania's School of Medicine told the Seventh International Congress of Genetics in Edinburgh, as reported in a copyrighted dispatch to Science Service.

As the result of an extensive investigation of nearly 1,500 cases of congenital defects and over 500 successful interviews of mothers in such cases, Dr Murphy was able to show that there is real danger of malformed children if defective offspring have already been born to the parents.

One reason the investigation was undertaken

by Dr Murphy and his medical students was that a colleague, asked by parents of a "monster" baby whether subsequent offspring were likely to be malformed, answered "no" according to the best knowledge available, and yet the next offspring turned out to be a monster.

Dr Murphy found that parents of malformed children suffer from varying degrees of reproductive inefficiency, of which the birth of a malformed child is only one expression. There is a long period of relative sterility which precedes the birth of the malformed member of the family. Fifth and subsequent children are more likely to be malformed than the first four children, the chances increasing with the number of children. Dr Murphy found

The Seventeenth Annual Meeting of the American Orthopsychiatric Association, an organization for the study and treatment of behavior and its disorders, will be held at the Hotel Stat-

ler, Boston, Massachusetts, on February 22, 23, and 24, 1940.

Dr Norvelle C La Mar, Secretary, 149 East 73rd Street, New York City

# The Woman's Auxiliary

## To the Medical Society of the State of New York

### County News

#### Albany County

At the November meeting Mr. Serge de Gerou gave a lecture on hair culture. Miss Dean and Miss Miller demonstrated the art of makeup. A luncheon meeting is planned for December when Mrs. Luther Klee, president-elect of New York State, will be the guest speaker.

#### Cayuga County

Annual reports of officers and committee chairmen were read at the November meeting. Officers for the coming year were nominated. The December meeting will be a Christmas dinner with the doctors.

#### Jefferson County

At the dinner meeting last month the guest speaker was Mrs. Brown Northrob, executive secretary of the Red Cross of Jefferson County, who gave a brief history of the Red Cross, its local activities and its cooperation with the Visiting Nurse Association and with Public Welfare.

#### Kings County

At the November meeting in the home of Mrs. Edwin Griffin, plans were made for a benefit-bridge to be held in December. The proceeds to be donated to the Physicians' Home of New York. Tea was served after the meeting.

#### Nassau County

The November meeting was held in conjunction with the Second District branch which consists of Nassau, Suffolk, Queens and Kings county medical societies. Mrs. Luther Klee presided. After the meeting luncheon was served to two hundred doctors and their wives. Dr. Louis Bauer, president of the second district branch, introduced the guests of honor, Dr. Terry Townsend, president of the New York State Medical Society, Dr. Eugene Calvelli, president of Nassau County Medical Society, Dr. F. Reilly, second vice-president of the second district branch, Mrs. William Lavelle, president of Queens County Auxiliary, Dr. Joseph Lawrence, executive officer, State Medical Society, Mrs. Milton Bergmann, president, Kings County

Auxiliary, Dr. Peter Irving, secretary, the State Medical Society, Mrs. Luther Klee, president, Nassau County Auxiliary, Dr. W. Gardener, first vice-president of the second district branch, Dr. E. Thompson, secretary of the second district branch, Mrs. Edwin Kolb, president, Suffolk County Auxiliary, Dr. MacLain, president, Suffolk County Medical Society, and Dr. Joseph Wrana, president, Queens County Medical Society.

In the afternoon a bridge party was held for the ladies of the auxiliary at which Dr. Joseph Lawrence gave a brief address.

The December meeting is to be in the form of a Christmas party and all members are requested to bring as a guest anyone eligible to membership in the auxiliary.

#### Rensselaer County

Dr. John J. McShane, former radiologist at the Troy Hospital, was the guest speaker at the November meeting. Dr. McShane gave an illustrated description of his recent trip to Europe, Asia, and Africa. After a brief business session the meeting was adjourned for a social hour.

#### Rockland County

Rockland County's history came alive in a talk given by former Assemblyman Laurens M. Hamilton before members of the Woman's Auxiliary and their guests at the November meeting held at the Houtenknopf Country Club in Macwah, New Jersey. Mrs. John C. Dragan, president, presided. Mrs. S. W. S. Tom, chairman of public relations committee for the New York State Auxiliary, gave a report of the state board meeting held at Saratoga. After the meeting a social hour was enjoyed.

#### Saratoga County

On November 21 Mrs. O. Scott Towne, president of the State Auxiliary, and Mrs. Thomas Billard, chairman of state organization, organized the Montgomery County Auxiliary at Otisville.

The Saratoga County Auxiliary planned to hold a health institute early in December under the direction of Miss MacLain and, executive were Mrs. J. of the Tuberculosis and Public Health Association.

Albany Medical Journal  
Hudson River Journal

# Books

Books for review should be sent to the Book Review Department at 1313 Bedford Avenue, Brooklyn, N Y. Acknowledgment of receipt will be made in these columns and deemed sufficient notification. Selection for review will be based on merit and the interest to our readers.

## RECEIVED

**A Textbook of Occupational Diseases of the Skin** By Louis Schwartz, M D, and Louis Tulpan, M D. Octavo of 799 pages, illustrated. Philadelphia, Lea & Febiger, 1939. Cloth, \$10.

**Diagnostic Signs, Reflexes and Syndromes Standardized** By William E Robertson, M D, and Harold F Robertson, M D. Duodecimo of 309 pages. Philadelphia, F A Davis Co, 1939. Cloth, \$3.50.

**Atlas of Surgical Operations** By Elliott C Cutler and Robert Zollinger. Folio of 181 pages, illustrated. New York, The Macmillan Co, 1939. Cloth, \$8.

**The Neurogenic Bladder** By Frederick C McLellan, M D. Octavo of 197 pages, illustrated. Springfield, Charles C Thomas, 1939. Cloth, \$4.

**A Synopsis of Surgical Anatomy.** By Alexander L McGregor, F R C S. Fourth edition. Duodecimo of 664 pages, illustrated. Baltimore, Williams & Wilkins Co, 1939. Cloth, \$6.

**The Dysenteric Disorders. The Diagnosis and Treatment of Dysentery, Sprue, Colitis and Other Diarrhoeas in General Practice.** By Philip Manson-Bahr, M D. Octavo of 613 pages, illustrated. Baltimore, Williams & Wilkins Co, 1939. Cloth, \$8.

**Caesarean Section. Lower Segment Operation.** By C McIntosh Marshall, F R C S. Octavo of 230 pages, illustrated. Baltimore, Williams & Wilkins Co, 1939. Cloth, \$6.50.

**A History of Tropical Medicine. Based on The Fitzpatrick Lectures Delivered Before the Royal College of Physicians of London, 1937-1938.** By H Harold Scott. In two volumes. Octavo of 1,165 pages, illustrated. Baltimore, Williams & Wilkins Co, 1939. Cloth, \$12.50 per set.

**Physiological Chemistry. A Textbook for Students.** By Albert P Mathews, Ph D. Sixth edition. Octavo of 1,488 pages, illustrated. Baltimore, Williams & Wilkins Co, 1939. Cloth, \$8.

**Stedman's Practical Medical Dictionary.** By Thomas L Stedman, M D, and Stanley T Garber, M D. Fourteenth edition. Octavo of 1,303 pages, illustrated. Baltimore, Williams & Wilkins Co, 1939. Cloth, with thumb index, \$7.50.

**Obstetrical Practice.** By Alfred C Beck, M D. Second edition. Quarto of 858 pages, illustrated. Baltimore, Williams & Wilkins Co, 1939. Cloth, \$7.

**Handbook of Bacteriology. For Students and Practitioners of Medicine.** By Joseph W Bigger, M D. Fifth edition. Octavo of 466 pages, illustrated. Baltimore, Williams & Wilkins Co, 1939. Cloth, \$4.25.

**Pictorial Midwifery. An Atlas of Midwifery for Pupil Midwives.** By Sir Comyns Berkeley, M D. Third edition. Octavo of 166 pages, illustrated. Baltimore, Williams & Wilkins Co, 1939. Cloth, \$3.

**Textbook of Nervous Diseases.** By Robert Bing. Fifth edition. Quarto of 838 pages, illustrated. St Louis, C V Mosby Co, 1939. Cloth, \$10.

**Psychobiology and Psychiatry. A Textbook of Normal and Abnormal Human Behavior.** By Wendell Muncie, M D. Octavo of 739 pages, illustrated. St Louis, C V Mosby Co, 1939. Cloth, \$8.

**Synopsis of Pediatrics.** By John Zahorsky, M D, assisted by T S Zahorsky, M D. Third edition. Duodecimo of 430 pages, illustrated. St Louis, C V Mosby Co, 1939. Cloth, \$4.

## REVIEWED

**The School Health Program.** By C-E A Winslow. Octavo of 120 pages. New York, The Regents' Inquiry (McGraw-Hill Book Co, Inc.), 1938. Cloth, \$1.50.

This comprehensive and searching inquiry into the New York State school health program will be of extreme interest to all concerned with the health and welfare of the school child, whether they be classroom teachers, health educators, or members of the medical profession.

The survey covered five major divisions of health in its widest sense—school sanitation, mental hygiene, health instruction, physical education, and health services. Sampling surveys were made in various picked communities that included some of the best and some of the worst conditions to be found. The health service

aspect seems to be the least effective of any of the phases studied.

Recommendations are made to correlate the educative and health fields to provide a program culminating in sound mental, emotional, and social health in the student. Facilities for more comprehensive health examinations are needed, as well as the integration of school hygiene into the program. A Bureau of Health Education as an integral part of the State Education Department seems indicated, with correlation and desirable technical assistance to be obtained by inviting the State Department of Health and the State Department of Mental Hygiene to participate.

MARK J WALLFIELD

**The Medical Applications of the Short-Wave Current.** By William Bierman M.D. Octavo of 379 pages, illustrated. Baltimore: William Wood & Co. 1938. Cloth \$5.

Although the literature on short wave therapy is now extensive, there is need for just such a book as is here presented. A clear exposition of the underlying physical principles uncolored by any convenient distortions is most acceptable. A complete review and evaluation of the work previously done in the field of short wave therapy is given to which the authors have added their own observations and suggestions. The book actually constitutes a complete course in short wave therapy and to obtain its fullest value it must be read through from cover to cover. The logical order of the text which is well written and clearly printed and illustrated facilitates such a study.

JEROME WEISS

**Health, Hygiene and Hooy.** By W. W. Bauer M.D. Octavo of 322 pages. Indianapolis, The Bobbs Merrill Co. 1938. Cloth \$2.50.

Surely this book deserves a place among the best sellers for popular reading. In this day and age of high pressure radio salesmanship of drugs, tooth pastes, health gadgets, and misinformed fear-producing health facts, not to mention special health magazines and news items, it is welcome to have a counterirritant in the form of Dr. Bauer's publication.

Paragraphs ad lib start off with a mirth provoking catchy sentence to be followed by good, sound medical horse sense. Certainly Dr. Bauer debunks many of the popular health misconceptions.

Physicians might well read this volume, not only to get a good laugh but to fortify their arguments as they try to break down the medical fallacies of their patients and the general community.

A. E. SHIPLEY

**Emotional Problems in Children. Technical Approaches Used in Their Study and Treatment.** By J. Louise Despert M.D. Octavo of 128 pages. Utica: State Hospitals Press. 1938. Cloth, \$1.50.

The purpose of this book is to provide special techniques for the study of emotional problems in children. The contents are divided into six portions, of which the first five are devoted to a presentation of specific technical approaches and the sixth and final part to a correlation of the previous data plus an evaluation of the methods outlined. The material used is from the Psychiatric Institute and Hospital, New York State.

Part I is devoted to 'The Story' as a form of verbalized fantasy. In this study careful analysis is made of three types of stories. Part II is concerned with the use of a knife under specific conditions. In Part III use is made of drawing in two groups of children: one psychotic, the other neurotic, including behavior problems of children. Part IV is concerned with collective fantasy. In Part V use is made of the playroom.

In the final portion of the work the author describes the procedure at the Psychiatric Institute and the study of a child from the moment of entrance to the final disposition of the situation. It is her impression that the problem of aggressiveness in children and its sublimation may be one of the most important to solve. There is an excellent reference list arranged by parts at the conclusion of the work.

STANLEY S. LAMM

**The Scientist in Action. A Scientific Study of His Methods.** By William H. George M.Sc. Octavo of 364 pages. New York, Emerson Books Inc. 1938. Cloth, \$3.00.

This publication is a view of the author's philosophy of science. To those who are primarily interested in the mental motivation of research it should prove of interest. To those who must face the actualities of laboratory practice without inquiring into their own urge for investigation the reviewer has his doubts.

G. B. RAY

**Cancer. Its Diagnosis and Treatment.** By Max Cutler M.D. and Franz Buschke M.D. Quarto of 757 pages, illustrated. Philadelphia: W. B. Saunders Co. 1938. Cloth \$10.

The special purpose of this work is to make accessible to the reader a critical evaluation of the pertinent facts in the diagnosis, prognosis, and treatment of cancer as gleaned from the literature and reviewed in the light of our own experience.

There are 42 chapters, a bibliography, a name index and a subject index, totaling some 757 pages. It is well illustrated. All in all it is a reasonably good reference work.

However it does not lessen the confusion, perplexity and bewilderment as noted by the authors in their preface—the clarification of which was another purpose of the work.

It may be of some value to the general practitioner but has very little to offer the specialist except as a reference work.

JOHN J. GAINES

**A Manual of Fractures and Dislocations.** By Barbara B. Stimson M.D. Duodecimo of 214 pages, illustrated. Philadelphia, Lea & Febiger. 1939. Cloth \$2.75.

As stated by the authoress in her preface, this handbook is intended primarily for medical students.

The work is an excellent introduction to the study of fractures. It contains a wealth of material for so small a volume. The content for the most part, is not controversial. Modern thought concerning the pathology, diagnosis, and treatment of fractures of all types, except skull fractures which are not mentioned is well epitomized.

Deserving of special commendation are the preliminary chapters dealing with general considerations of classification and diagnosis, bone repair, principles of treatment and details of technique in treatment. These well merit careful study by all who treat fractures, experts in traumatic surgery included.

M. E. ROSS



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